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agency for international development
January/February 1980

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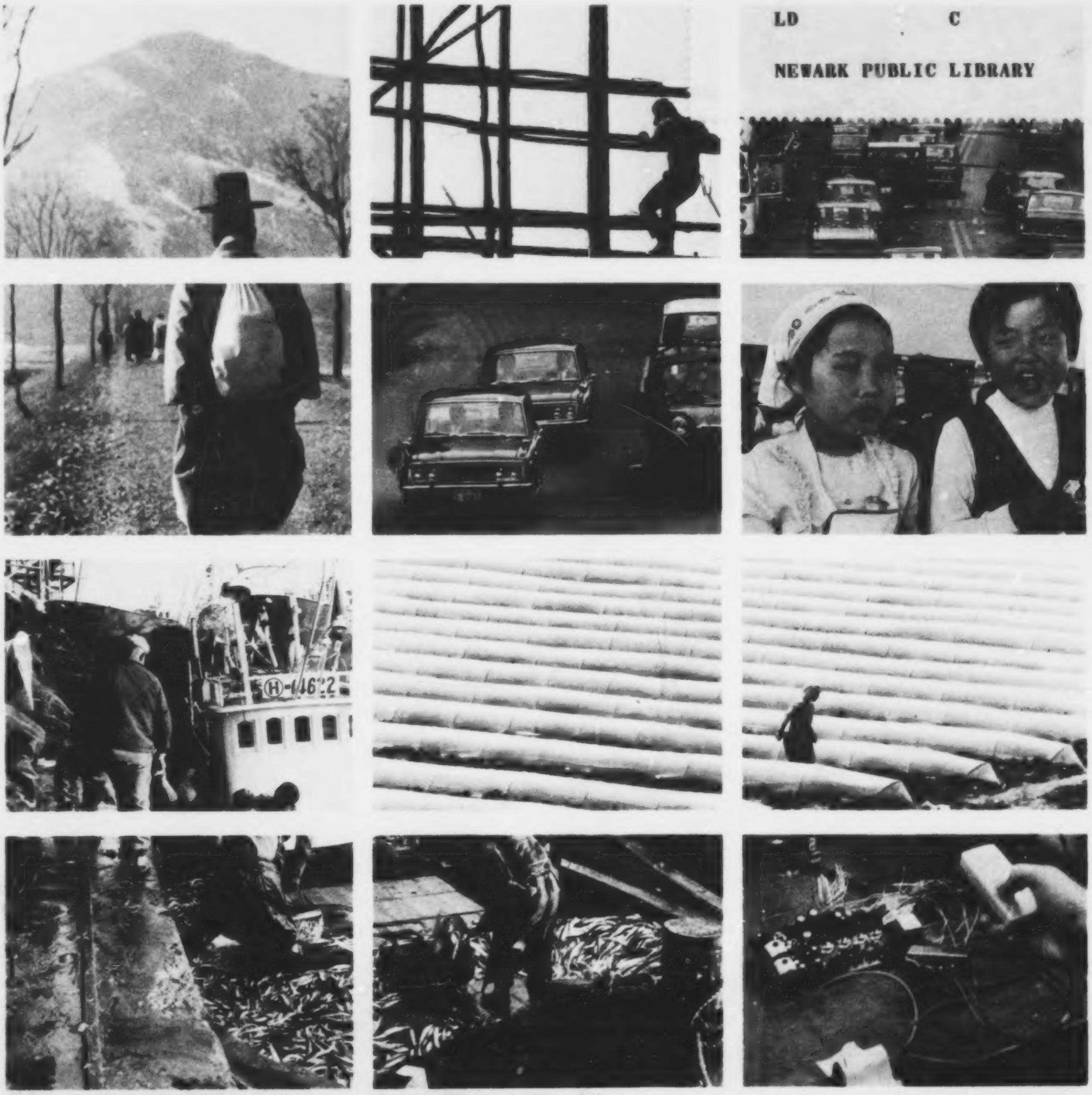

South Korea–Moving out of the Third World

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what the media say...

Hurricanes David and Frederic helped produce one of the worst Atlantic hurricane seasons on record, the National Hurricane Center reported this week. Preliminary reports assembled by the center list an awesome toll for the two storms that swept through the Caribbean and onto the United States mainland in early September. Together, they killed more than 1,200 people, left more than 600,000 homeless and caused more than $1 billion in damage, the center said.

New York Times

* * *

Millions of Asians will continue to go hungry as the world faces a decline in foodgrain production in the 1979-80 crop year. Drought, floods and armed conflicts have undermined Asia's ability to produce its own food. And poor harvests in the rest of the world make it unlikely that Asian nations--home to 60% of the world's population—can rely on imports to make up for shortfalls.

Christian Science Monitor

* * *

U.S. food assistance is not reaching the people who need it the most, especially in remote, rural areas of low-income nations, says the General Accounting Office.

Spending on American food donations overseas totaled $573 million in the past fiscal year. Congress is considering a $679 million program for this year (Fiscal Year 1980), including $123 million requested by President Carter for Cambodian refugees.

The GAO reported that in Sri Lanka, healthy and well-fed children in the capital receive American food while poorer children on remote tea plantations go hungry. In Ghana, pupils in one private school received U.S. aid food but in a similar school 150 yards away, they did not. The GAO said neither school qualified for food assistance. The GAO said too many government agencies are involved in delivering food relief supplies. It recommended that food aid should be planned as part of a country's overall development, with more of it channeled to the poorer countries and responsibility centralized in the Agency for International Development.

Carl Hartman, Associated Press

* * *

The Third World is moving toward a massive food shortage that will increase the United States' role as world's breadbasket, a U.N. report says. But the report cautions that "economic disaster" within the next 20 years is possible because of the burden increasing oil prices place on developing nations.

Washington Star

* * *

The General Accounting Office called yesterday for the appointment of a United Nations auditor general to improve auditing and financial management at the U.N. and its related organizations.

"The United Nations should inform its contributors and its beneficiaries about how effectively the monies are being used. To do this, the U.N. should be in the forefront of auditing practices. It is not," the GAO, the audit arm of Congress, said. . . .

Washington Post

United Nations economists began drafting today an economic plan designed to give an immediate boost to living standards in the world's 30 poorest countries. Their aim is to provide internationally accepted minimum standards of nutrition, health and housing for the 30 countries and prevent them from falling still further behind the rest of the world in prosperity.

If present trends continued, . . . the gap between the poorest countries and developing countries would widen considerably over the next 10 years.

Reuter

* * *

The world economy could stabilize next year, although lending rates in the United States will continue to rise through the rest of this year and the U.S. will close the fourth quarter heading into recession, a top U.S. banker predicted . . . at a meeting of the American Chamber of Commerce in Mexico.

Journal of Commerce

* * *

Academic entrepreneurs lobbying for Congress? That's what Sen. Dennis DeConcini (D.-Ariz.) says is going on to set up and get money for a new government research institute (Institute for Scientific and Technologic Cooperation) that's expected to do a lot of business with academic institutions. . . . While richly financed Washington representatives of the universities respond that there's nobody here but us observers and while Justice ponders whether to round up the usual suspects, the allegations of illicit lobbying in this case ought to be disentangled from the claimed object of the lobbying. For something important is at stake—namely, the recruitment and focusing of this country's enormous research and educational powers to help some of the poor countries improve their lot.

Daniel S. Greenburg,
Washington Post

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Douglas J. Bennet Jr., Administrator
James W. McCulla, Director
Office of Public Affairs

Press and Publications Division,
Office of Public Affairs
Agency for International Development
Washington, DC 20523
(202) 632-8351

Edward R. Caplan, Division Chief
Lee Mullane, Editor

South Korea: moving out of the Third World

A "basket case" 25 years ago, Korea has come a long way.

by John Maxwell Hamilton

Korea's ancient culture is reflected in the face of this distinguished elder.

Near Taejon

As the late afternoon sun begins to cast long shadows across a Korean panorama of sharply rising mountains and flooded rice fields, a traveler can see a country visibly moving out of the Third World. A farmer slogs knee deep through the paddy water behind a small, motorized tiller. The modest dwelling in the foreground sprouts electrical wires and a TV antenna. In the doorway a crippled boy sits in a gleaming wheelchair. Running down the paved highway toward town are four young men in jogging suits.

At a single glance this scene, repeated in one form or another throughout South Korea, tells one of the greatest development stories of the century. Only 25 years ago, South Korea was universally recognized as a basket case, a wreck with no future. Today, this nation-beyond-hope is about to graduate from the rolls of the U.S. foreign assistance program, a living example that nowhere are people doomed to lives of ignorance, disease, and poverty.

Statistics, so often the stuff of dry economic reports and overly ambitious five-year plans, convey the dynamism of South Korea's march toward economic self-sufficiency. Seventeen years ago, yearly per capita income was $82. Since

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John Maxwell Hamilton is special assistant to AID's assistant administrator for Asia.

then, the economy has grown more than 10% a year, a rate many developed countries can envy. Average income has broken the $1,000 mark and this year is expected to reach $1,500. A nation that outlawed foreign commerce in the 15th century, South Korea expects its exports this year to reach $15.5 billion, a jump of more than $10 billion since 1974. *Fortune* magazine lists nine South Korean firms in the world's top 500 business organizations.

Behind these totals lies a more significant array of statistics. High national income averages and big corporate profits are not always a sign of general prosperity, especially in less developed countries, where such growth frequently means larger gaps between rich and poor. Koreans have paid for advances by working in sweat shop environments, but by LDC standards they also have earned a large share of the profits. According to a World Bank study of the period between 1964 and 1970, South Korea's distribution of new wealth was "among the best in the developing world." Inequities seem to have increased recently, but the government can still point to figures showing that earnings for farm households, which often do not even have a foot on LDC economic ladders, exceeded average income for urban households at the end of 1977. Translated into real terms, these figures add up to more of everything for South Koreans—food, education, television sets, cars . . . and hope that they will soon become full-fledged members of the developed world.

힘

In the early 1950s, South Korea's chances for prosperity were as bleak as its scarred hills and valleys, made treeless by the Korean War. No country has ever been more completely laid waste by war, observed J. Donald Kingsley, assigned by the United Nations to help repair the nation. "The damage after three years of conflict fought over almost every acre of South Korea is greater than that suffered by any other country in modern history," reported *New York Times* correspondent Greg McGregor. "By any appraisal, the situation could be described as desperate."

MADE IN KOREA
MADE IN KOREA
MADE IN KOREA
MADE IN KOREA
MADE IN KOREA

In Korea today, factories turn out agricultural, industrial and commercial wares.

"Korea's Troubles—Bound to Grow," *U.S. News & World Report*, June 12, 1953:

"After three years of war that cost more than a million lives and billions of dollars, Korea now is a bigger mess than ever. . . .

"Even with the fighting slowed down, it will take a long time to build South Korea back to what it was before the war started. Homes, shops, schools, hospitals, all have been wrecked. At one time more than 9 million were homeless or living in temporary shelter. . . .

"There still isn't enough food to go around, and there isn't much prospect that there will be any time soon . . .

"In addition, the farmland is beginning to wear out from overcultivation, and most of the fertilizer factories have been idled by war damage. Food production isn't expected to reach the point where Korea will be self-sufficient for years. . . .

"And it is the same all down the line—in fishing, in textiles, in power and mining, in all production. Goods are scarce and markets are stagnant. . . ."

Korea's problems, however, did not begin with the war. Rather the Korean War was a final body blow after five decades of enduring every kind of hardship and humiliation.

The "Hermit Kingdom," as Korea became known during a long stretch of isolation, embarked on the 20th century with dim prospects. A victim of degenerate domestic leadership and the great power struggle that had begun in Asia, Korea became a Japanese colony in the early 1900s. The Japanese built modern infrastructure, such as roads and some industry, and provided fresh order and stability. But from the beginning, the Koreans endured Japanese rule without recourse to Japan's constitutional rights. Japanese landlords controlled most of the farms, exporting produce to their homeland. By the 1930s per capita Korean rice consumption reportedly dropped 45%. With little respect for the local culture, the Japanese prohibited use of the Korean language in schools, eliminated the Korean language press, and encouraged Koreans to take Japanese surnames.

Although the end of World War II marked the close of Japanese occupation, it did not restore harmony. Instead, it resulted in partition of the peninsula into a communist state in the North and a U.S.-protected South, which was at a decided disadvantage. The Japanese had concentrated their modernization efforts above the 38th parallel, leaving South Korea with a debilitated agricultural economy and only one-third of the industry, 10% of the hydroelectric power, and virtually none of the natural resources like coal, iron or mineral deposits. Underterred, refugees from the North flooded South Korea, giving it two-thirds of the total population.

The Korean war further wracked the nation, destroying almost three-fourths of its insignificant industry. Those who saw South Korea firsthand after the war recall legions of beggars living under the bridges in Seoul and women harnessed to plows in the countryside. The U.S. press carried reports of the dire conditions.

"About 100,000 children have been orphaned," reported an American correspondent. "Two-thirds of them," said another, "are wandering on the highways facing Siberian winds and winter weather."

A woman seeks advice at a mobile clinic, part

Many wondered if the Koreans themselves weren't hopeless. "Several missions have visited Korea during the past 12 months to study conditions firsthand," reported one newsman. "In each instance, after several days in Korea, they admitted that one of the prime reasons for their visit was to determine whether the Korean people were worth helping."

On the prospects for U.S. assistance, C. L. Sulzberger concluded in his regular *New York Times* column: "Our investment in blood, money and promises is immense. It is hard to conjecture how we can make it pay off."

Chungju

The Chungju fertilizer plant is a gray, low-lying complex. The original ammonia processing plant, built with U.S. assistance, is no longer in use, its paint peeling off in hunks. Of the 60-odd Korean plant workers trained abroad with U.S. money, now only the manager still works in the complex that abuts the Han River 75 miles southeast of Seoul.

Despite this, Chungju is a success story. The old ammonia processing station is idle by dint of progress, not failure. The Koreans have replaced it with a more modern apparatus in a relentless effort to increase production. The now absent

of a U.S.-assisted family planning program.

trainees, having mastered the techniques of heavy chemical production and plant payrolls, have fanned out through the country, starting and managing new industries.

In the early 1950s Korean President Syngman Rhee told C. Tyler Wood, director of U.S. assistance efforts in South Korea, that his country needed more than relief; it needed an industrial project outside of the capital city, Seoul. Wood suggested a plant using a new Swiss chemical process for making urea fertilizer, a compound of ammonia and carbon dioxide.

Critics predicted a monumental white elephant. And sitting in their austere offices today, the Chungju staff can tick off the problems that arose. The feasibility study failed to show that the Han River's muddy water would clog the cooling system. The planners didn't take into account that construction materials—"cement, nuts and bolts, even a small nail"—would be hard to get. The original $19.5 million building contract with two U.S. companies was amended five times and ultimately the project ran to $33.3 million.

Many wondered if the Koreans could take over the complex operation themselves, but their performance has belied these fears. Chungju was initially to meet one-fourth to one-third of the fertilizer needs of the republic and save $10 million in foreign exchange by reducing imports. The Koreans have surpassed this goal. With increasing efficiency they have built and run other fertilizer plants. Today Korea is a net exporter of fertilizer, and Chungju is just one arm of Korea General Chemical Corp.

This year, when the AID mission in Seoul closes its doors, the imprint of 35 years of American assistance will remain: A power plant generator along the Han River wears a plaque with the AID handclasp. The color scheme adopted for U.S.-financed housing projects has become a standard feature on Korean built high-rise dwellings. The railroad and port facilities are reminders of U.S. assistance. So are industries, big and small, that grew up because of U.S. credit.

Economic assistance has come in as many forms in Korea as the U.S. agencies sent to administer it. After partition in 1945, the United States Army Military Government in Korea (USAMGIK) fed and clothed the fledging nation and helped bring about land reform. Before the Korean War, the U.S. Economic Cooperation Administration's importation of fertilizer led to a 25% jump in grain production, providing hope that the country would be self-sufficient in rice in the 1950s. The war and its aftermath brought renewed relief and rehabilitation by a succession of organizations: first the Mutual Security Agency, then the Foreign Operations Administration; and after 1955, the International Cooperation Administration. In the 1960s, the newly created Agency for International Development (AID) shifted from direct support of the Korean budget to loans as Korea became more self-reliant, and its prospects for development seemed more certain.

Subject to politics and personalities as well as economics and good will, foreign aid can create stormy marriages. And until the mid 1960s, U.S.-Korean relations were often tempestuous. On the American side there was criticism of Korean corruption, lack of will and, of course, foreign aid in general. In 1948 the Congress failed to pass a foreign assistance package for Korea and several other nations; half a dozen years later conservative Senator Allen Ellender said, "Koreans are just the kind of people that will bloodsuck you." Eventually, he added, "our aid programs will bring our own economy down to the level of the countries we are trying to help."

Koreans had their complaints, too. Song in Sang, minister of reconstruction and finance in the late 1950s, still remembers AID red tape and the U.S. fishing advisers who knew nothing about Korean conditions and provided little help. He also recalls the hours spent arguing for the U.S. to use assistance funds on education and to build small-scale industry.

The real contribution of economic aid, which has totaled almost $6 billion, is difficult to add up. In strict economic terms, points out Harvard economist David Cole, U.S. assistance from the mid-1940s to the mid-1960s made the difference between GNP growth of about 1.5% a year and no growth at all. In the later years, as the economy began to take off, it may have accounted for 1% of the annual growth rate.

But the benefits of assistance go far beyond the story gross national figures can relate. The most important human progress is often unquantifiable. The success of early relief programs, which ensured the survival of the nation, cannot be measured by the corpses that did *not* appear along roadsides. The increased farm yields as a result of water control projects, for instance, provide limited descriptions of how lives have improved and say nothing of collateral benefits, such as fishing and flood control. At the same time it is impossible to measure the exact contribution the U.S. has made to solving knotty problems like population growth, which declined from 3% a year in 1961 to 1.7% in 1976.

The benefits of some projects have occurred long after the final reports were filed. New institutions devoted to education, science and technology, and economics have set in motion research and policy analysis by some 3,700 Koreans trained with U.S. assistance.

Because in the beginning the U.S. provided money in grants, not loans, South Korea avoided building up a large debt, which made the country more creditworthy later. Economic advice led to landmark policies, such as increasing interest rates on consumer savings accounts to 24% a year, which helped establish the financial base for economic growth. Even military assistance, amounting to nearly $7 billion, contributed to development. Military officers trained by the United States in management have become captains of South Korean industry. Gen. Paik Sun Yup, Korea's most decorated soldier, runs Chungju's parent corporation. Bridges and other military-built infrastructure have had inestimable economic importance to commerce.

Daeduk Science Town

The Korean Standards Research Institute (KSRI) has that bland, expressionless look that only age can correct. Mud and a few newly planted saplings make up the grounds. On a rainy day, the new office buildings and laboratories look cold, almost dreary. Inside, dust from freshly plastered walls is still lodged in the corners, ignored by the scientists hell-bent on keeping "Korean time," once a derogatory term used to describe Korean tardiness.

"Although this is a young institution," says Kim Zae-Quan, president of KSRI, "it has a long history." Kim is talking about the years of effort that went into creating the institute, completed last March with U.S. loans and technical advice from the U.S. National Bureau of Standards. But Korean interest in weights and measures goes back long before 1965, when U.S. President Lyndon Johnson promised Korean President Park Chung Hee a set of standards. In the lobby of the main building a metal cylinder rests on a stone altar. It is a replica of a rain gauge designed and distributed by Korean King Sejon in 1441, 200 years before Europe recognized the usefulness of measuring rainfall scientifically.

Development is not a neat, straight thread. It is scores of tangled strands—economic conditions, culture and history, foreign assistance, geography, political organization and good luck. In the end the reasons for success are as difficult to unravel as development plans are to design.

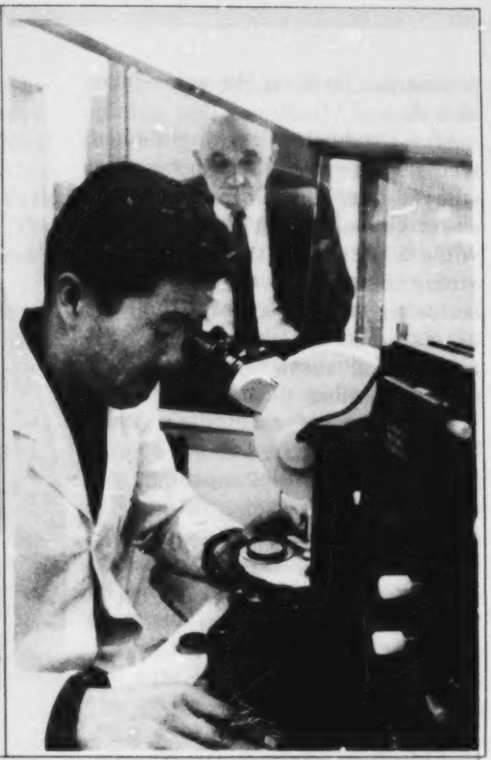
So it is with South Korea. A recent special World Bank report attributes Korea's success to "political stability, strong leadership, and a firm commitment to development." Perhaps most important, says the report, "was the early recognition of Korean policy-makers of the capacity of trade in manufactured goods to compensate for the poverty of natural resources. This recognition led to . . . a development strategy concentrating on the expansion of labor-intensive manufacturing for export."

It is common to see Korean men and

These explanations notwithstanding success happens in curious ways. Take, for instance, land reform, a difficult task in the Third World where entrenched, landowning elites can protect their investments. Part of the explanation for Korea's successful redistribution of land lies in political will and U.S. encouragement. Part lies in circumstances: The first phase of reform, in 1947, was relatively easy because it concentrated on Japanese-owned farms. And Syngman Rhee had little to lose by completing the reform two years later since most Korean landowners were already his political enemies. The circumstances surrounding land distribution in other countries have been as peculiar. The Homestead Act, which in 1862 gave 160 acres of U.S. land to any American citizen or prospective citizen who applied, passed the U.S. Congress only after secessionist members withdrew from the House and Senate.

Park Choong Hoon, a former minister of finance and reconstruction,

women working side-by-side on road and other projects.



A KIST technician analyzes a metal sample.

sees international politics as fortuitous to Korea's development. When the level of foreign assistance began to decline, he explains, the United States contracted with Korean firms to build large infrastructure projects in Vietnam. This not only gave South Korea new revenues but offered Korean companies practical experience in overseas construction, which they have since parlayed into a booming business stretching from Saudi Arabia to Indonesia.

In hindsight, the attempt to make sense out of South Korea's economic miracle has led some to suggest that its liabilities were in fact assets. Supporters of this theory have it that the utter destruction of Korea in the early 1950s was a blessing—the leaders acted more decisively to solve the nation's problems because the status quo wasn't even barely acceptable.

Laying success to outside factors, not the people themselves, however, is a great mistake. Even those who reported in the 1950s that the war foreclosed South Korea's chances for prosperity could not fail to note the Korean people's iron-hard, stoic determination. Plant managers and researchers describe their staffs "as working day and night." Even though Koreans have begun to enjoy the products of their labor, the average work week is 53 hours. Many in small factories and on farms work far more.

The innovations at the Korea Institute of Science and Technology (KIST) illustrate the fruits of hard work and imagination. Founded to help fledging industries with research and development, KIST has undertaken more than 2,000 projects producing a dazzling assortment of achievements. Because the mineral-poor country had to import expensive copper, its researchers developed a copper-plated wire that conducted electricity as well as a solid copper wire. They developed a medicine for tuberculosis that sells for one-fourth the price for imported medicine. When they couldn't afford to buy an exclusive process for making black-and-white X-ray film, they invented one themselves in a month.

To those who know Korea's past, these achievements come as no surprise. For although "Hermit Kingdom" and "Land of the Morning Calm" do not seem to describe a nation that is ready to make the leap from underdevelopment to industrialization, Korea's Confucian ethic has for centuries dignified diligence and instilled a reverence for scholarship.

Not surprisingly, much of today's enterprise has antecedents deep in Korea's past. Daeduk Science Town is new, but the study of ship design in one of its 18 public-financed institutions is not. Koreans built the world's first iron ship centuries ago. Similarly, agricultural research and extension work at the Office of Rural Development in Suwon continues an old tradition. The Yi dynasty (1392-1910) set up an experimental farm on the same lakeside site.

Like floodwaters seeking ancient wadis, renewed political power has coursed along traditional Korean channels, carrying development with it. Korea has a history of strong central authority. Even intellectuals, the first to resent the lack of civil liberties that comes with unallayed government power, concede the value of mobilizing the country to achieve economic goals. "You have to give credit to the leadership for exploiting the potentials," says one economist. A Korean educator adds, "You have to have a single government headed by a man who knows where he wants his country to go. This more than anything is important."

Fear of hostile North Korea has buttressed this national economic drive. Few nations are in a comparable state of readiness. The Koreans design highways that can double as airfields and build bridges that can be easily destroyed to slow enemy advances. Likewise, economic progress in part of South Korea's defense plan. Survival, say Koreans, depends on possessing the economic strength to fight the North and to speak with a stronger voice in international forums where Korea's fate can be shaped by the superpowers.

Gunee County

The families living here in the heart of Korea's apple growing region are prosperous. Their incomes average about $4,000 a year and they can buy the amenities of modern living: every household has one radio or more, almost half have television sets. Nevertheless, health care, which money can buy in the most developed countries, has remained largely out of reach.

To help overcome this problem, the Korean Health Development Corp. started a demonstration health project in Gunee and two other counties several years ago.

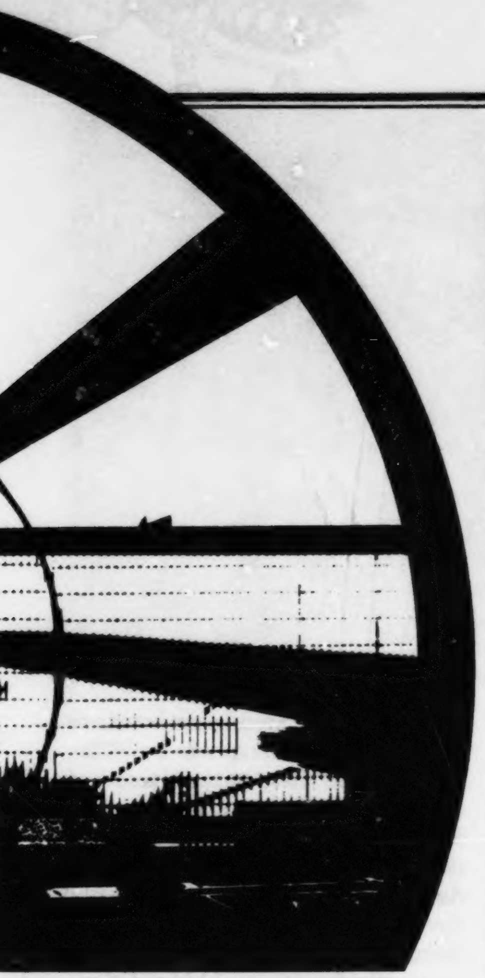
"Before we started the project, the people couldn't get treatment or medical advice," reports the Gunee County chief. "Now they can."

In 1977, when the project started, only 2,500 people were considered "covered" by health care. In 1973, almost 20,000 had access to medical attention, according to local statistics, and the number of cases treated that year rose from 6,521 to 35,749.

But Gunee County has not solved its medical problems. Some 40,000 people in the county remain outside the health system. Despite increases in the numbers of trained health aides and nurses, and construction of community health centers and small health posts, it has proved difficult to get physicians. Of the three originally recruited, only one has stayed; the other two left because they did not want to live in a remote area. Although the people of Gunee appreciate better health care, few participate in village meetings to discuss the program or ways of improving it.

Money looms as the biggest stumbling block for the project, one of the last in South Korea to receive U.S. financial assistance from the Agency for International Development. The county chief worries if the government will give money to keep the program going after the demonstration period ends. National health officials fear that the government won't allocate money to underwrite similar programs in the hundreds of other communities where medical attention is as scarce as in Gunee.

Is South Korea's progress without flaws? Is its development complete?



The answer is no. As with even the most economically advanced countries, development is an uneven process at best and South Korea's progress has highlighted some shortcomings while eliminating others.

Some problems like health care remain deeply entrenched. The Confucian ethic, which has propelled development, has also acted as a brake. Women remain severely restricted. The bonds of extended families continue to be stronger than community ties. The old feeling that it is better not to innovate than to chance failure, says Kim Yong Gul, vice president of the Korea Advanced Institute of Science, still dominates much of the people's thinking.

Contrary to earlier hopes, democracy has not developed apace with increases in incomes and television sets. Intellectuals have become restive about the heavy-handed policies, controlled national elections and the absence of civil liberties of former President Park Chung Hee's administration. The assasination of Park leaves Korea's political future in doubt.

Besides these enduring difficulties, the solutions to underdevelopment have created new problems. For the managers at the Chungju fertilizer plant, the battlefront, once limited to production, has widened to include pollution. Inflation and the energy crisis are taking some of the steam out of South Korea's economy. For the first time in years the government is revising its annual economic goals downward, albeit slightly. The tidal wave of immigrants from the rural areas is making Seoul, which grows by a quarter of a million people a year, as congested as New York and Tokyo. The highly subsidized farm industry, which has given South Korea rice self-sufficiency, is heading toward a Japanese-style crunch where consumers pay four to five times the world price for rice.

Prosperity is straining the once largely homogeneous society. Wage rates have increased by one-third in the last four years, according to some estimates, but the typical Korean worker is still relatively less well paid than his counterparts in Japan or Western Europe and, worse, South Korea's growth seems now to be becoming less equitable. Critics say that the green revolution that followed land redistribution is creating a favored class of farmers. The emergence of a super-rich class of entrepreneurs, in a country that traditionally believed in *chongbih* or "clean poorness," is heightening the feeling of frustration. So, too, is the increase in corporate corruption such as the recent Yulsan Corp. scandal, which followed charges that its president illegally obtained $300 million in government loans. A recent public opinion poll reportedly has shown that half of all Koreans "feel that most rich people are corrupt."

South Korea's place in the world is far different than it was a quarter of a century ago. Perhaps nothing symbolizes this more than its relationship with the United States. No longer dependent on American largesse, South Korea is now the 12th largest U.S. trading partner and is providing a small amount of foreign assistance of its own to African countries.

South Koreans expect to assume an increasing international role. Their GNP is already five times larger than North Korea's. By 1991, Koreans say their economy will rank with those of countries like Italy, Ireland, Spain and Great Britain. These predictions seem reasonable, stated the World Bank in a report last year. The Bank added: "In view of other problems being faced by developed countries regarding energy, structural adjustment, etc., Korea may aim at where the developed countries are trying to go, rather than where they are today."

Meanwhile, Korean planners are beginning to think about social problems and remedies—national health insurance and social security, skills training so Korea can move away from low-paying, labor-intensive production, even affirmative action to give women a broader role.

Ultimately, the answer to what the future holds may lie in Koreans' perennial stuggle with their land. Wave upon wave of mountains roll across the nation. After centuries of traversing these obstacles, Koreans know that one never arrives —there is always a challenge over the next horizon.

There is always another mountain—Korean saying.

The fight against malaria isn't over

Once nearly wiped out, malaria is making a comeback around the world.

by Susan Super

In the 1950s and the 1960s, WHO, with support from many countries including the United States, aspired bravely to eradicate malaria from the globe. Why did the effort fail?

Lack of money is certainly part of the answer. In 1978, the Rockefeller Foundation estimated that world funding for research in malaria was $5 million, or less than 2 cents a year for each of the 300 million affected. In that year, the United States Government alone spent $815 million for research on cancer, with a world prevalence of roughly 10 million people.

New York Times, July 1, 1979

IN THE 1940s, THERE WERE an estimated 300 million cases of malaria a year. By the 1960s, the figure dropped to 125 million, after massive eradication efforts.

But now the number is climbing. By 1978, malaria cases reached 150 million as the disease resurged in Asia, Central and South America. Malaria has continued unchecked in Africa, which accounts for two-thirds of all cases worldwide. The World Health Organization (WHO) estimates that at least a million African children under age 14 die from malaria every year.

Malaria is a major stumbling block to development in Third World countries. It is a debilitating and recurring disease, and it leads to reduced productivity and economic losses. For just one year in India, 1952, such losses—directly attributed to malaria—nearly hit the $1 billion mark.

Malaria victims go through days of alternating chills and fever, leaving them physically and mentally exhausted. One malaria chill may consume 5,000 calories. The disease is especially hard on people whose diets are inadequate—a rural laborer in India, for example, who may eat only 700 calories in food a day. It may take weeks to recover from a malaria bout—and recovery is no insurance against relapse. Three of the four parasites that cause malaria can lie dormant for months or a year and then strike again.

Much of the pioneering work on controlling malaria and other insect-carried diseases came with the building of the Panama Canal. Sickness and death among the workers had frustrated attempts to build the canal in the late 1800s. It was not uncommon for a third of the work force to be out sick, and 20% of the laborers died in a year. U.S. Army Col. William Gorgas brought the situation under control by ordering sanitation improved and mosquito breeding places eliminated. By the time the canal opened in 1914, malaria and yellow fever had been virtually wiped out in Panama.

Until DDT was developed in the 1940s, malaria control still depended on the methods similar to those used in Panama: eliminating mosquito breeding places by such methods as filling, draining or cleaning ditches (source reduction); spraying water surfaces with oil to control mosquito larvae; preventing mosquito bites by screening houses and using mosquito repellants; and treating malaria victims with drugs like quinine. But comprehensive programs using these techniques were expensive—beyond the reach

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Susan Super is assistant editor of Front Lines, AID's employee newspaper.

Spraying houses with insecticide is an important and effective part of malaria control.

of most developing countries.

DDT, a cheap and highly effective pesticide seemed to offer the chance to wipe out malaria once and for all. When DDT became generally available after World War II, it was used as a long-lasting wall spray and its success in breaking the chain of malaria transmission was clearly demonstrated in programs carried out by the Rockefeller Foundation in Sardinia; by the U.S. Public Health Service in 12 southern states; and in Cyprus, Greece, Italy, India and Sri Lanka. In the early 1950s similar control projects were launched elsewhere and by 1955, 29 countries had national malaria control projects for which they received technical assistance from WHO and supplies from UNICEF. Nineteen countries also had assistance from the U.S. International Cooperation Administration—AID's predecessor. In 1955, the World Health Assembly endorsed massive eradication programs using DDT for spraying houses.

The worldwide malaria battle has cost some $3 to $4 billion since the 1940s, with the United States contributing an estimated $1.5 billion through AID programs and contributions to international organizations.

But malaria not only is still with us, it's on the rise. Was the eradication strategy a failure?

"On the contrary," declares Edgar Smith of AID's Health Office. "In some respects, we were too successful. So much has been said of the failure to eradicate malaria that we tend to forget the tremendous benefits deriving from the program. Hundreds of thousands of lives were saved and millions of people were spared suffering. Programs were highly successful in reducing—if not always eradicating—the disease and were low in cost—an average of 15 to 25 cents per person a year.

"Malaria was eradicated in 37 countries. Most of the other countries that tried eradication reduced the number of cases dramatically. As a result, people let down their guard. They thought malaria was no longer a problem. Funding for anti-malaria programs lost priority."

There were other problems. Insecticides were not delivered on time; correct procedures and timing were not followed in spraying insecticides; and political instability in some countries compounded the administrative and management difficulties. In the meantime, some mosquitoes developed resistance to pesticides, and parasites outwitted anti-malaria drugs.

In spite of those problems, "only half as many cases of malaria are reported now as there were in the 1940s," Smith points out. "Population has almost doubled worldwide since then, so malaria occurs at only one-fourth its former rate (as a percentage of the population). Millions of acres of land have been settled and farmed because of malaria control in countries like Indonesia, the Philippines and India. And because of the eradication program, 500 million people today don't face the risk of malaria."

Malaria is a familiar foe to Smith, who has been in control programs for 35 years, the past 23 with AID and its predecessors. In the 1950s, he warned that "a massive, complex malaria campaign would demand near perfection to succeed—strict schedules and supervision for planning, timing and carrying out a sustained effort for not less than seven or eight years.

Smith and other experts urged comprehensive anti-malaria programs geared to the needs of individual countries and including traditional approaches along with insecticide spraying. Also needed were training and support for research into new ways to defeat the disease, like anti-malaria drugs, vaccines and biological control of mosquitoes and parasites.

Over the years the United States has given direct assistance to anti-malaria programs in 36 countries and indirect assistance to another 50 through WHO and the Pan American Health Organization. "In the mid-1960s and early 1970s, in country after country, malaria returned and interferred with other development programs," Smith relates. But in many countries where

AID is now supporting malaria programs, the disease is again retreating.

The history of malaria in Sri Lanka is typical of many countries in Asia. By 1963, following a successful eradication program, Sri Lanka reported only 17 malaria cases among its 11 million people. The program seemed so successful that, in effect, it was dismantled. When malaria returned, the country's ability to respond was gone. By 1969, there were an estimated 2.5 million cases. Since then, a campaign assisted by many donors is pushing the disease back again—to 60,000 cases in 1976. Along with the Sri Lanka government, contributors to that battle have been the United States (through AID), the United Kingdom and the Netherlands.

AID's Asia area regional adviser reports that examination of recent blood slides shows that the prevalence of malaria in areas without a control program is five times higher than where a program is under way. He adds that once the rates are down, "the tough job is to keep them down by keeping up the program."

AID is supporting Sri Lanka's house spraying campaign, which has been beefed up by the use of Malathion. Malathion can take the place of DDT, where mosquitoes have developed resistance. But resistance to any insecticide is probably inevitable, making the need for research into other control techniques imperative. The United States has supported research and anti-malaria efforts in Asia through a $170 million program over the past five years in India, Pakistan, Indonesia, Nepal and Thailand, in addition to Sri Lanka.

India, which recently reported 6 million cases (up from 100,000 in 1962), has used an AID loan to purchase 5,900 metric tons (6,500 tons) of Malathion and other supplies for spraying in two states.

The Agency also is supporting Thailand's malaria control program through training and research to develop the country's ability to solve its own malaria problems. AID is sending a consultant to Bangkok to advise the government on improving the transportation system so medical and other supplies for the anti-malaria program get where they are needed in time.

During the past 20 years malaria has been eliminated in 12 countries and territories of the Western Hemisphere, including the United States, Chile, Cuba, Dominica, Grenada, Guadeloupe, Jamaica, Martinique,

A health worker in India sprays a pool of stagnant water where mosquitoes breed.

Puerto Rico, St. Lucia, Trinidad-Tobago and the U.S. Virgin Islands. In addition, disease transmission has been virtually eliminated in Argentina, Belize, Costa Rica, French Guiana, Guyana, Panama, Paraguay and the Dominican Republic.

But, according to the Pan American Health Organization, malaria programs in the Latin American region in recent years have not made great headway.

In Haiti, for example, malaria cases fell rapidly until 1969 when they started up again. The disease now occurs in 70% of the country. In the past, DDT house-spraying was used and anti-malarial drugs were distributed. But because insects grew resistant to the insecticide and people failed to use the drugs, results were poor. In the past three years DDT spraying has been supplemented by drainage and landfill. U.S. funds support anti-malaria programs in Haiti and elsewhere, in cooperation with the Pan American Health Organization. AID also is providing $5 million over three years to Haiti in the form of technical assistance, budget support and supplies. In addition, AID will support a research program there to ascertain which forms of insecticide are no longer effective and why.

Africa has more malaria cases than the rest of the world combined, and presents particular obstacles to the fight against the disease.

The species of *Anopheles* mosquitoes that transmit malaria in Africa add to the problems because they are highly adaptable, live long and multiply quickly in a wide range of temporary waste deposits. Moreover, because many people sleep outside, wall-spraying doesn't always work.

The World Health Organization estimates that 261 million people live in areas of tropical Africa where malaria is considered the main cause of sickness and death. There have been promising trials on malaria control and eradication, but only 17% of the people receive some kind of protection—most of them in urban areas.

Perhaps the major stumbling block in Africa is the lack of basic health care. Experts emphasize that any real progress in malaria control must be coupled with improving health services. On the average there is only one physician for every 20,000 people, and the ratio is probably worse in rural areas.

As malaria programs get into full swing again, AID is working with the World Health Organization to develop new malaria control strategies for African countries.

In the mid-60s AID began to fund research into immunity and vaccination. Smith explains that ongoing research may lead to a cheap, effective, mass-produced vaccine—which many experts once considered impossible.

Vampire-fashion, the female Anopheles mosquito must have a series of blood meals to make viable eggs. Some types of anopheline mosquitoes that carry malaria parasites are an important link—a "vector"—in transmitting the disease.

It works like this: After the mosquito bites a malaria victim, she rest (often on the walls of houses) and nourishes the malaria parasites as she digests the blood meal. When she bites another person, the mosquito injects saliva carrying large numbers of malaria parasites.

This chain of events is the basis of stubborn malaria pockets that persist worldwide, afflicting millions of people. The chain has several weak links that can be broken in programs to prevent, control or cure the disease.

In 1966, AID proposed a project for vaccine development even though prospects for success appeared slight. In the next six years, research showed it was feasible. An AID-supported workshop in 1974 at the National Academy of Sciences generated increased interest and support and a collaborating network of 10 research laboratories are now working on different aspects of the problem.

As a result of a breakthrough at Rockefeller University, for the first time techniques were developed for growing malaria parasites outside living animals. "This has been hailed as the greatest advance in malaria research in 25 years," Smith says. "It has been the basis for accelerated progress in many other malaria immunization projects."

With the current emphasis on using all available methods of malaria control in a comprehensive approach, training has become the No. 1 priority, according to Smith. "For 15 years the Agency supported training centers in the Philippines and Jamaica that prepared thousands of workers for malaria programs in 90 countries. Many have since moved on to higher positions in other health programs or in their health ministries."

The World Health Organization and AID are working together to develop support for training programs again that would build the skills needed to fight malaria and other diseases.

"The story of malaria resurgence should teach us a clear lesson," Smith concludes. "If history is not to repeat itself, we must maintain a balance control effort, improving malaria control methods currently available and supporting research into new techniques." ☐

Nurturing a democracy

AID is helping Portugal build a new and stronger country following years of turmoil.

Text and photos
by Kay Chernush

This is the first in a series of articles on the AID program in Portugal. While it is the poorest nation in Europe, Portugal cannot be compared to struggling countries like Bangladesh or Botswana. Yet U.S. assistance to Portugal—and nearly 20 other low-to-middle-income countries like it—is vital to U.S. security and economic interests.

WHEN AFONSO DO AMARAL returned to his native Portugal four years ago, he arrived with only the clothes on his back. A refugee from the former Portuguese colony of Angola, Amaral faced an uncertain future with a wife, two daughters, a young son-in-law and two granddaughters to support.

His situation mirrored that of his country at large—it, too, was starting a new life after the 1974 revolution.

For the Amarals and the more than 750,000 *retornados* like them, a new start meant turmoil and hardtimes.

For Portugal, one of the oldest states in Europe, starting afresh

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Kay Chernush is a photographer-writer in AID's office of Public Affairs.

meant forging a modern democracy after nearly 50 years under the dictatorial rule of Antonio Salazar and his successor Marcello Caetano. It meant rebuilding an economy bankrupted by colonial wars and foundering under the weight of inflation, unemployment and falling production.

Except for Albania, Portugal, a NATO ally with long-standing ties to the United States, is the poorest country in Europe. Salazar prevented the country from accepting aid under the Marshall Plan and imposed economic policies that largely prevented Portugal from participating in the European economic boom of the 1960s.

Per capita income averages less than $1,700 a year, compared to $3,440 in Italy and $4,420 in Britain, sometimes called the "sick men of Europe" because of their economic difficulties. The country is heavily rural; only one-fourth of its 9.8 million people live in cities. Yet rural Portugal, including Madeira and the isolated islands of the Azores, were traditionally neglected in favor of Lisbon, Porto and Coimbra, metropolitan centers of government, commerce and cultural life.

Outside the provincial capitals, few schools went beyond the primary level. Those that did were hamstrung by a lack of facilities and staff. For health care beyond folk remedies people had to journey many miles to city hospitals. Farmers tilled their fields and tended their flocks much as they had for hundreds of years. Only a decade ago it was still possible to see people hitched to plows, straining to turn over the rocky soil of their small plots. Today, although approximately 30% of the labor force earn a living from agriculture, Portugal must import fully 50% of its food, including feed for animals.

Under the dictatorship, industry, too, was generally backward. Since the colonial empire provided Portugal with protected markets, there was little impetus to modernize or introduce competitive practices. The government controlled trade unions and workers were denied the right to strike. Wages were low and the trade deficit, chronically high.

Welcome as it was to the vast majority of Portuguese, for whom the strictures of the Salazar regime had become unbearable, the 1974 revolution put the economy in even worse straits than before. A wave of nationalizations and strikes swept the country, causing a flight of capital and shaking the confidence of foreign investors. While workers' wages increased, production did not.

External factors also contributed to Portugal's difficulties. Because of the energy crisis and a general economic slowdown in Western Europe, Portuguese "guest workers" abroad, who number about 1 million, sent home less money, thus aggravating the balance-of-payments crisis. (Income from workers abroad, along with tourism, continues to be a major source of foreign exchange earnings.)

Another blow came with the dismantling of Portugal's overseas empire. Trade with the former colonies virtually dried up. Refugees started arriving from the newly independent nations of Mozambique, Angola and Guinea-Bissau. Suddenly, there were 750,000 more people to house, feed, educate and provide jobs for —the equivalent of an 8% population increase in a country already suffering from high unemployment. This would be comparable to roughly 17 million mostly destitute Americans returning to the United States from different parts of the world during a period of severe economic recession.

Portugal's economic problems mounted, threatening its fragile, new democratic institutions. Help was not long in coming, however. Quietly and in concert with the other industrialized democracies, the United States began providing what has amounted to more than $657 million in economic assistance since 1975. The Common Market, Norway, Venezuela and other Western donors also came to Portugal's aid, as did Japan, the World Bank and the International Monetary Fund. This support has allowed Lisbon to buy time while it seeks to bring its external deficit under control, reduce unemployment—said to be as high as 15%—and control inflation.

Under Economic Support Fund legislation, the United States provides foreign aid ranging from balance of payments support, cash transfers and commodity import programs to development projects. Such help is important in protecting U.S. interests in countries, like Portugal, which have undergone political or economic crises.

U.S. assistance to Portugal is largely channeled to the rural and less developed areas. Loans to date put top priority on low-income housing, rural water supply and sanitation, school construction, rural vocational education and rural health. American experts are providing technical assistance in several fields while Portuguese officials, academics and professionals are receiving short-term training in the United States in subjects like animal husbandry, sewerage maintenance and public health administration.

In 1975, the AID program was initiated with a $13.25 million low-income housing loan and a $20 million housing investment guarantee. An additional $10 million loan and $20 million guarantee were authorized in 1976 for housing construction and slum eradication. Approximately one-third of the nearly 9,000 units planned under this project have been completed.

As the refugee problem became more acute in late 1975, the United States helped organize an airlift of some 35,000 *retornados* from Angola. Among them were Amaral and his family—jobless and virtually penniless.

The potential for enormous social upheaval was apparent from the outset and the United States contributed $36 million to help ease the burden on the Portuguese government. The main concerns were to create jobs and provide temporary housing, food and health care, and AID funds helped many of these people get back on their feet.

Women still collect water in the old way.

Amaral, for example, teamed up with a friend from Angola and got a low-interest loan through Caritas, an international Catholic Relief organization which administers AID relief and resettlement money in Portugal. The loan enabled the men to set up a concrete block factory. Today, the business, which started "as a hole in the ground, a big nothing," employs 16 people, many of them refugees. In all, Caritas has administered some 150 similar loans, in addition to supporting the relief effort.

Past neglect and underdevelopment of the interior and island regions are mirrored in statistics. Only 9% of all doctors practice inland. In the north and the Azores, upwards of 85% of the people are without an adequate and sanitary supply of water. A recent housing census found not only a widespread lack of running water, but few sanitary installations and sewerage hook-ups. A World Health Organization survey has indicated that health standards are generally low, in large part because of poor environmental sanitation. A cholera epidemic in 1974 and 1975 took the lives of more than 50 people and affected thousands more.

Construction spells progress, and jobs.

Today, the government is attempting to redress this historic imbalance between city and country, to create job opportunities and provide basic amenities in rural areas. AID is helping the effort, financing the construction of 37 water supply systems, 33 sewerage disposal systems and 17 rural health centers.

Health Minister Antonio Correia de Campos, who spent nearly a year at the Johns Hopkins University under an AID training program, believes the rural clinics are one way to draw doctors away from the central hospitals.

"What we are trying to do is to concentrate the specialists in the hospitals and to open up this new job for the primary care physician in rural communities," Campos says. "One of my main jobs is to develop this alternative type of medical career."

AID also is providing $26 million to support the government's drive to expand the number of preparatory and secondary schools throughout the country. Thirty-eight schools are being built under the loan. Perhaps no other project holds as much hope—for both personal growth and national development.

The scarcity of rural secondary schools has meant that many students simply ended their education after the compulsory four years. A teacher at a gleaming new AID-financed school in the village of Azambuja recalls the enormous sacrifice her family made to send her to the nearest secondary school, some 25 miles away.

"I was one of the lucky ones. Most children simply were not able to go. So this school has already made a big difference in the students' lives," she says. It also has made a difference in the lives of their parents, many of whom take advantage of the school's evening courses.

Changing people's lives by making education more closely serve individual and regional needs is the main goal of the government's educational reforms. As part of this on-going program, AID has committed $7 million in loans and technical assistance grants for four rural polytechnic universities. Established in 1973 to provide practical education to students in rural areas, the schools are geared to teaching, research and extension in the fields of agriculture, textiles and, in the case of the Azores, fisheries. AID funds are being used to build experimental farm facilities, classrooms and laboratories and provide equipment and teaching materials, among other things. AID officials hope the universities will become important regional centers for agricultural development and community extension.

The 1974 revolution held out the promise of significant change, of a more equitable society, a new start. Indeed, five years later, both Amaral and Portugal are, if not completely out of the woods, at least in a clearing. The country now has several national elections under its belt and the experiment with democracy appears to have taken hold, with democratic forces winning out over extremists on both the right and left.

The 18-month-old austerity program also seems to have produced some positive results. The balance-of-payments deficit has been cut in half, from $1.5 billion to $750 million. Inflation has eased somewhat, down from 27% to 22%. In addition, tourism has rebounded to pre-revolution levels and Portuguese workers abroad have begun to send paychecks home again. The fact that Portugal has been accepted for membership in the European Common Market in the 80s bodes well for the future.

Yet serious problems persist. Unemployment and underemployment are as ticklish a problem in Portugal as in many developing nations. Transportation, health, housing, education all need to be improved. Portugal still faces the tremendous task of nurturing its democratic institutions while at the same time stabilizing its economy and achieving full membership in the family of Western democratic nations. □

Women: key to reforestation

It is the women who know best what to plant, where and how to make it grow.

by Susan Super

A WOMAN, BENT ALMOST DOUBLE UNDER a heavy load of firewood, trudges back to her village—it is a common sight in many developing countries. A third of the world's people, almost 1.5 billion, now depend on wood for cooking and heating. Yet as the number of people rises and more wood is needed, forests shrink in Africa, Asia and Latin America. When nearby fuelwood supplies run out, women will be faced with a choice that may affect their way of life: They will have to buy wood from those who can cart it from outlying areas or turn to another fuel. For most the alternatives are crop residues and animal dung—fertilizers their croplands need badly.

The chain of events set in motion as people try to meet their basic needs has regional and even global consequences. Indiscriminate wood cutting for agriculture and other uses leads to increased erosion, flooding, spreading deserts, decreased quality of water, decreased soil fertility, and even buildup of carbon dioxide in the atmosphere, which could in turn result in atmospheric changes.

"Today, new notions about the purpose and practice of forestry are percolating through Third World forestry circles and international aid agencies," declares Erik Eckholm in the Worldwatch paper, "Planting for the Future: Forestry for Human Needs." "In essence, some foresters are beginning to see the necessity of taking forestry outside the forests—of involving people throughout the countryside in growing trees to meet their own requirements as well as to protect the land off which they live."

Enlisting community participation may not be easy. "Women in Forestry for Local Community Development," written by Marilyn Hoskins for AID's Office of Women in Development, provides some of the now missing information. Her report offers useful observations and practical suggestions on how to make community forestry projects work and how to get women involved.

Although Third World women are seldom formally trained in forestry, she points out, "they frequently know the most appropriate uses of local forestry products."

Throughout the Third World, women are the gatherers of wood.

When available wood fuels are scarce, women change their cooking practices—and the eating habits of their people. According to Hoskins, in Nepal diets are including more and more raw food. In Guatemala, families are abandoning the traditional beans because they take too long to cook. In eastern Upper Volta, local officials are distressed that soybeans introduced in a large scale development scheme have grown extremely well, but women are not accepting them. The reason: soybeans take longer to cook than the more commonly grown cow pea.

In the peanut basin of Senegal one woman remarked, "One can starve with a full granary if one has no fuel to cook the meal."

The actual extent of these changes and their impact on nutrition needs to be evaluated. The impact of such changes on health should also be examined because there is no refrigeration for leftovers and the increased consumption of raw foods and unboiled water may cause an increase in otherwise avoidable diseases. This information should be available to local women and men and to programmers when discussing local priorities and evaluating local needs for forestry in community development.

Traders will supply wood, but will people be able to buy?

While program designers now are more conscientious about talking with community leaders or village councils, Hoskins acknowledges, these leaders almost invariably are men. . . Program after program has failed because participation of women, so essential to the project's success, was overlooked.

In one village, in response to a request to talk to women, both men and women gathered in a group. "When asked questions on fuel problems the men answered while the women stood in what looked like silent agreement," Hoskins reports. Several spokesmen said wood was getting more and more expensive and told the weekly cost of fuel wood per family. Only after requesting to see a fireplace was it possible to talk to the wives alone and discover there had been no wood available for months. Women were, in fact, burning dung which, they remarked, would have been better used as fertilizer on the fields had there been an alternative fuel.

In Senegal a regional forestry officer, concerned about starting community forestry programs, insisted that Senegalese women did not and could not, plant trees. In the evening, chatting alone with his wife about sayings or beliefs that might limit women's desire to plant trees, he discovered that his wife, her mother and grandmother had planted trees. In fact, the forester's wife had planted all the trees in their own courtyard. She remarked that where there were trees in courtyards, women had probably put them there.

During a meeting in Upper Volta, women with no forestry training spoke with authority on a species of eucalyptus tree being planted in local projects. They cited advantages, but felt that other types of trees were better than eucalyptus for more typical situations, Hoskins relates. They listed its disadvantages: it is not edible for humans; it is difficult and time consuming to cut; it is sticky and awkward to carry; it burns rapidly; oils give it a very hot flame difficult to control for long, slow cooking of local dishes; oils in the smoke give a "Vicks Vapo-Rub" taste to foods and damage eyes; when planted near gardens or fields, the tree damages other plants and poisons the surrounding soil.

Hoskins says questions about local forestry needs and women's position in the community, family and land use should be answered before a program is designed. People to contact for this information include local women teachers, extension agents, wives of foresters and Peace Corps volunteers. The key in planning projects is to take local needs and constraints—like agricultural practices, taboos, social customs, roles of men and women, migration and land use patterns—into consideration, Hoskins insists.

"Forestry services may wish to start work through extension services and local grade schools while at the same time strengthening their extension capability and changing their image." This may be difficult for forestry offices that are usually understaffed and underfinanced, she admits, but some countries are doing it. A successful project in Senegal was aided by a woman extension agent along with a male forester. Encouraging women to enter forestry so they may help other local women become involved in programs will help community efforts, she notes.

"However," Hoskins concludes, "it is not a good idea to overstress women's participation without looking at the total picture. Just as it is unfortunate to plan projects in which women are expected to perform the work but have no voice in, it would be unfortunate to draw up arbitrary rules on women's involvement in projects." □

Development from within

Progress can't be forced–it must come in rhythm with people's lives.

by Dr. Lois Spears

IN HELPING ECONOMICALLY backward nations, development specialists follow models based on stages of growth experienced by industrialized Western nations. But there is a problem with this approach. Equally significant development patterns may be ignored simply because they do not follow the model. This may explain why specialists often overlook the great variety of voluntary associations, both religious and humanitarian, that spend long years working in economically depressed areas.

Barrington Moore's 1966 work, "Social Origins of Dictatorship and Democracy" ("Lord and Peasant in in the Making of the Modern World," Beacon) puts voluntary groups into the development picture. While clearly delineating three models of development—bourgeois, capitalist reactionary and communist—he leaves a fourth open, calling it only "a weak impulse toward modernization." To apply this fourth model Moore offers some guidelines.

All of the five guidelines Moore uses stem from blunders Western nations made when they industrialized. To begin with, Moore says, development assistance must be geared, not merely to economic growth, but to every facet of people's lives. As important as literacy and job skills may be, social and artistic expression need to be fostered, too. Development also must stress the concept of self-help: people taking charge of their own lives. Third, because for the most part we are dealing with non-industrialized economies, the poorest of the poor in rural areas should receive priority in modernization programs. Fourth, all assistance should be offered within the context of local traditions so that change can grow out of the culture rather than in opposition to it. Finally, the fragile environment of many of the developing areas—the Sahel, for example—makes it essential that modernization does not further disrupt the precarious balance.

CARE

PROJECT HOPE

idr

PROJECT CONCERN

Oxfam-America

Save the Children

VITA NEWS

PLAN
FOSTER PARENTS PLAN INTERNATIONAL INC

One of the many voluntary organizations, Bureau d'Etudes et de Liaisons, is headquartered in Ouagadougou, Upper Volto. According to its director, the Rev. Ernest Berens, the organization — like many others—originally focused on evangelization through churches, schools, and centers. The Sahel drought caused leaders to change their perspective. Now, according to Berens, "we're concerned, not directly with saving souls, but with development. There's hardly any part of people's lives that the church isn't interested in." Among its projects are 47 agricultural and 54 health projects—chiefly dispensaries—and a number of technical and formation schools.

The projects rest on several principles, including a belief that people must develop themselves. Volunteers can only assist. That assistance begins with dialogue at the grass roots level. "We must put ourselves into the rhythm of the

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Dr. Lois Spears is director of communications for Mercy National Center in Potomac, Md.

population." Small projects using traditional methods are favored, keeping in mind that work must be seen as something that leads to human development. "Human beings are creators; that is their proper work."

Local projects are initiated after conversation with villagers, Berens says. Then larger development schemes will generate still other projects. When projects are being organized, he warns, developers should not forget that the learning process must be reciprocal. "West Africans prize human over economic values," he explains, illustrating with the story of a villager who refused to drink filtered water because it would reduce his resistance to dysentery. If that happened, he would be forced, on his return to his native village, to refuse the glass of unfiltered water offered to him by his mother—the traditional act of courtesy tendered to returning kinfolk. For him, customs were more important than the good health and presumed prosperity associated with drinking purified water.

We have a lot to learn from this African villager, Berens concludes.

The Menonites, another voluntary group working in West Africa, come from a background that is largely rural. According to Anne and Terry Stuckey, who provide a homelike atmosphere at their central office in Ouagadougou, Mennonite volunteers never go where they aren't wanted; they respect people's wishes. When invited to a village, the volunteers specialize in well-digging—but not the easy way. To use modern technology to sink a well in one day, would defeat the purpose, the Stuckey's explain. The well would be an alien fixture donated by outside forces, an intrusion into the culture. If the casing broke during the rainy reason or the shaft silted over during the dry season, it would go unrepaired. Instead, the Mennonites require the villagers to shoulder part of the cost, as well as provide labor and materials. So when the well is completed, they can take pride not only in ownership, but also in the knowledge that they have become skilled in well-digging.

A recently updated directory of U.S. non-profit organizations working in developing countries lists 458 separate groups. Published by the Technical Assistance Information Clearing House of the American Council of Voluntary Agencies for Foreign Service, with AID funds, "U.S. Non-Profit Organizations in Development Assistance Abroad" provides names, addresses and descriptions of structure, funding and purpose. It is the first updating since 1971.

Of the 451 organizations listed, 71 are voluntary agencies. According to the Council a voluntary agency is one "established by private citizens for a stated philanthropic purpose and supported by voluntary contributions from individuals." The directory also shows 10 foundations, 203 religious organizations and 72 other non-profit groups including professional associations, membership organizations, affiliates and branches of business, labor and cooperative groups and organizations supported by endowments, major foundations or government agencies.

Another organization involved in development goes by the acronym BECAD. Jan Bruyns, a Dutch Catholic priest, coordinates the Mali sector of this organization from his parish office in Bamako. BECAD is a clearinghouse for information needed by voluntary groups, and it helps in development projects. The message BECAD gives to voluntary groups, according to Bruyns, is the need to respect and understand the culture. Iowa farmers might respond to the "snowball" theory, which presupposes that upon seeing a neighbor's improved methods of crop rotation giving higher yields, a farmer will go home and imitate the successful methods. But Mali farmers, true to the fatalism they have acquired over the years, will draw a number of varying conclusions: Allah smiled on the successful farmer; the farmer had an education denied the other vilagers; he had a better social standing than his neighbors. In far too many cases, successful farming methods would not rub off on the other villagers.

Bruyns says it is better to give local people only the materials they are unable to provide by themselves and then let them proceed at their own rate. Guidance should come only upon request and from people dedicated to a lifetime of service. Those with deadlines to meet—Peace Corps volunteers with three-year hitches abroad, for example—may interfere with development because they want to finish a project before their tour of duty is completed. If development is aimed merely at finishing a project, Bruyns concluded, its value is limited, for it does nothing to foster long-lasting attitude change.

These voluntary groups, Bureau d'Etudes et de Liaisons, the Mennonites and BECAD, all work with the poorest of the poor in predominantly rural settings. They are trying not to dominate people and change their culture, but to help them gain a sense of their own dignity and a belief that they are masters of their own lives. Because development assistance from purely humanitarian motives always ranks low on the priority scales of donor governments, voluntary groups provide a service too often unavailable from any other source. Development specialists should take note of their work. ☐

A poor man for all seasons

For the farmer of the Third World, life is a never-ending cycle of hardship.

A poor man for all seasons: The Institute of Development Studies at England's University of Sussex has created a seasonal portrait of the poor Third World farmer. It goes like this: The end of the dry season . . . a time when there is a rise in the labor and energy requirements for fetching water, watering livestock, gathering food. Landless or small farm households suffer sooner and more than others. They have smaller food reserves because they grow less, raise fewer livestock, lose a higher proportion of their food reserves in storage and have less money. They need to work to buy food, but work is scarce and wages are low at this time of year. Some migrate in search of work and food.

Come the first rains: Future food supplies and cash income depend on timely agricultural operations. Poorer farmers can be harmed by lack of seeds, fertilizers, water or animal power often supplied by rich farmers or merchants. Their animals are weak, their food inadequate. Food prices are high. Anticipating hard work, mothers stop nursing their babies. Food preparation becomes more hurried, the diet less varied and nutritious. The wet season is the least healthy time of year, the peak of some of the more serious and debilitating diseases such as malaria, diarrhea, Guinea worm, and skin infections. Failure through illness to meet labor demands can critically reduce future incomes and food supplies. The poor and landless find work least difficult to get and wages highest during this period so work now to tide them over until the next season, but may be prevented by illness. Poorer people are often driven to distress sales or borrowing.

Harvesting and post-harvesting: work is hard. Death rates, especially among older adults, peak due to ill effects of the wet season and the high energy demands of harvest work. Debts are repaid, but on the basis of low post-harvest prices. It is a bad time for mothers and children (births peak, but babies' weights at birth are so low that death is common). If they live past the first few days of life, the infants face malnutrition because of the poor quality of their mother's milk.

Finally, post-harvest brings surcease from near-desperation. People eat more food and what they eat is more nutritious. People put on weight; sickness and death rates go down. Ceremonies, celebrations and marriages take place. The rate of conception peaks. Then gradually, the cycle begins again.

Third World: threat or opportunity?

Many Americans see foreign aid as a drain, but it means benefits for us, too.

by George Marotta

TO THE CHEERS OF SOME Third World Diplomats, Fidel Castro, called upon the nations of the world to end the "exploitation of the poor" and to build a new international order or face an apocalypse. Speaking to the United Nations General Assembly in mid-October, he demanded "a new world order based on justice, on equity, on peace" to replace the "unjust world system that exists today."

Castro said he was speaking on behalf of a Third World "struggling for an eradication of poverty, of hunger, of disease, of illiteracy, from which hundreds of millions of human beings suffer." Specifically, Castro called on the United States and other wealthy "imperialists" to pay $300 billion over 10 years to develop poor countries. "If there are no resources for development," he warned, "there will be no peace."

Many Americans have good reason to react negatively to the pleadings of the Third World countries. We seldom get thanks for the help that we provide and the countries we help frequently criticize us in the United Nations. In the face of all this, why don't we just ignore them? The fact is, we can't. They are too important to us for many reasons.

The low-income Third World countries represent more than two-thirds of the 152 countries in the United Nations. If we are to take a world leadership role, we must have their support—or at least agreement—on a wide range of subjects. For as they learn to act collectively, these developing countries will wield more and more power. We depend on developing countries for a major part of the raw materials vital to our industrial economy. We import and consume more raw materials than any other country: With 6% of the world's population, we consume 40% of the raw materials. It is a well-known and painful fact that the United States is dependent on foreign imports of crude oil for half of our total needs.

Road building, with American-made machinery, bolsters Third World economies.

Almost one-third of U.S. exports now go to developing countries (excluding the oil-producing nations) —more than we send Europe—generating hundreds of thousands of jobs as well as profits. More and more industrial products are going overseas, and much of the growth in our economy is due to exports, which reached a record $15.8 billion during September.

One-quarter of this country's investment overseas is in the developing countries. The benefits are mutual. The recipient country gains technology, jobs and skill-training; we earn the profits.

Another reason we can't ignore the Third World is that most of the future population growth will occur there. At current rates, today's world population of 4 billion will double in 30 years—and 85% of the growth will be in the developing countries.

These countries have many things in common: low per capita income (in 1966, 83 of the countries had an average per capita income of less than $700), inadequate or nonexistent health services, poor housing, lack of education, high illiteracy, a fragile political system and a rudimentary economy. Most are located in the southern portion of the

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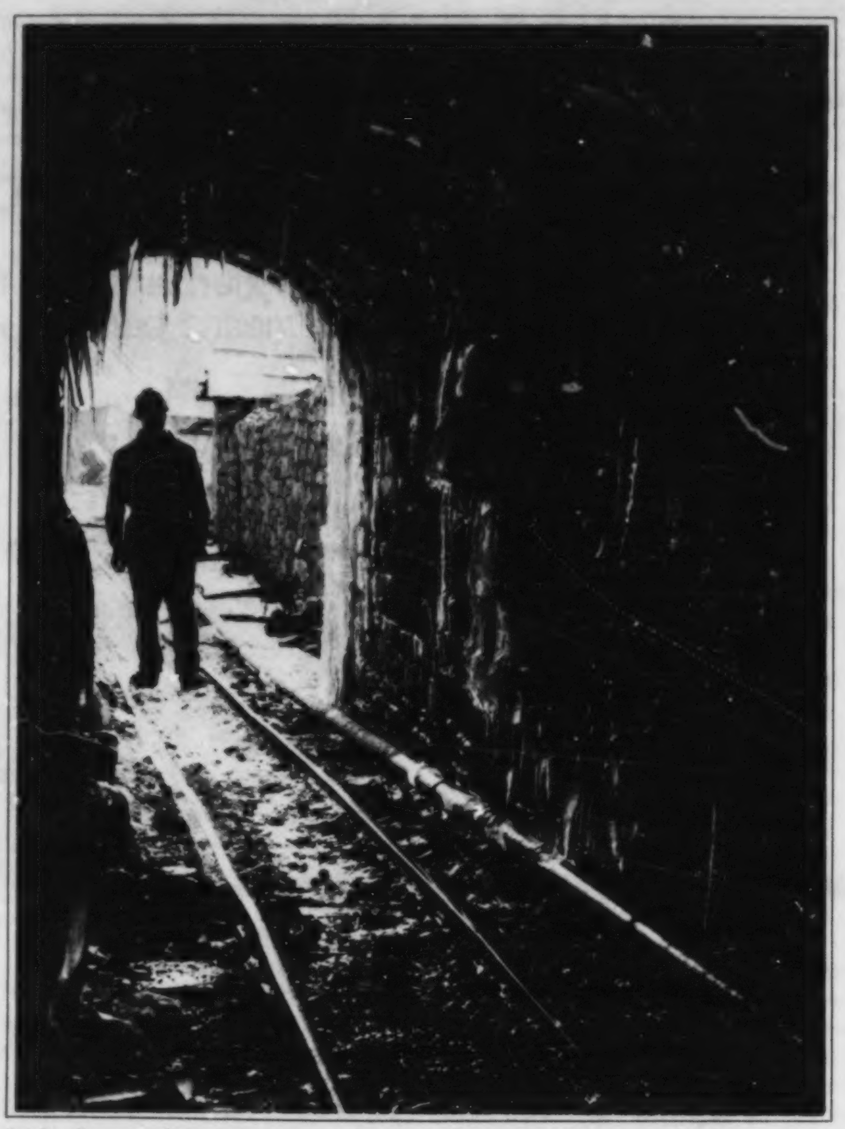
George Marotta is a senior research fellow at Stanford University's Hoover Institution.

globe in Africa, Asia and Latin America.

Who are the poorest of the poor? Development experts pin that label on some 40 countries with annual per capita incomes of less than $295. One, Haiti, is in the Western Hemisphere. The rest are in Africa and Asia, ranging in size from Benin (population 3.2 million) and Bhutan (1.2 million) to India (620 million) and Indonesia (135 million). Collectively they have 42% of the world's 4.2 billion people, but share only 3.6% of the world's gross national product. At least 600 million of their citizens live in absolute poverty. Only a fourth of their total population has access to safe drinking water. Some 122 infants of every 1,000 die before they are a year old, compared to 15 in affluent countries. Approximately 85% of the labor force tills the soil compared to 11% in industrial countries and only 4% in the United States. About 23% of the adults are illiterate, according to the World Bank.

That is not to say that progress hasn't been made. Over the past 25 years, per capita income in the developing countries has more than doubled in real terms—a far faster rate of growth than in the industrial countries. Twenty years ago life expectancy in the developing world was about 42 years; today it has passed 50.

Most developing countries share a disinterest in the machinations of the great powers. For example, 96 of these developing countries recently meeting in Havana, resisted Castro's attempts to push the so-called "nonaligned" movement into the Soviet camp. The developing countries have banded together against the Western industrialized nations to demand several far-reaching changes that they characterize as a "New International Economic Order." (It is taken as a supreme compliment to us that they seldom make demands to the Soviets). Specifically, they want to establish commodity agreements to reduce price fluctuations in, and to get higher prices for, the basic materials they export. The lack of foreign exchange to pay for the recent oil price increases has stalled economic development among the non-oil-producing Third World countries. Higher oil prices will add some $10 billion a year to the import bills of the developing countries and are a major reason their outstanding foreign debt was rising to a staggering $358 billion by the end of 1979.



Icicles form at the entrance to a mine in Bolivia, a major source of U.S. copper.

Because prices developing countries receive for their exports appear always to be depressed in relation to inflated costs of industrial imported goods from the wealthy nations, Third World nations also have demanded some type of price indexing to correct this disparity. They want freer access to sell into the largest industrial and consumer market—the United States (over $2 trillion). One expert estimates that

Workers complete a suspension bridge in eastern Nepal with U.S. assistance.

the developing countries could earn an additional $24 billion a year if the industrialized countries would remove all import barriers. (This amount is almost twice the level of aid from the industrialized countries to the poorer nations.)

Most Third World countries look to the United States and the democratic Western countries for help in their development. They want our technological and financial help, our manufactured goods, investments, access to our markets, political support and in some cases security agreements. Not only should we not ignore the developing countries, we should recognize the opportunities they provide to us. Their vast and potentially expanding markets provide huge opportunities for the future growth of our industrial productivity. By raising the living standards of the world's poor, the United States helps lift the buying power of our best customers. And their low-cost goods help us check inflation and improve our standard of living.

The adjustment cost to displaced U.S. industries and workers is not too high a price to pay.

The United States possesses residual good will from the emerging countries who gratefully remember crucial U.S. support in their early efforts to win political freedom from colonialism. (The ranting and raving common in United Nations deliberations do not exist in the quietly productive bilateral relationships.) Now they want help to develop economic independence. We must proceed with the difficult task of identifying changes that will benefit their long-run interests, and ours. The problem is how to give Third World nations a more active voice in international economic decisions without losing benefits the present structure now affords us.

The leaders of most of the newly independent countries have maintained tight controls over their economies. A major emphasis of the technological assistance we provide should be on benefits provided by the free market system. Accelerating development of alternate energy sources would reduce demand for oil and help arrest the pressure on world oil prices that is crippling the poorest countries. (This, of course, would also benefit the United States.) It would benefit the developing countries more than a doubling of U.S. foreign aid. This means that all non-oil energy sources must be quickly expanded—coal as well as nuclear energy. Our delay or failure to exercise available energy alternatives is unconscionable. We have options; developing nations don't.

To speed up the development of alternative energy sources, we should hike domestic oil prices even higher to reduce consumption. We should be aware that using our automobiles more than we need to could mean no kerosene for stoves and lamps in many Third World countries. Any action that contributes to increasing the demand for foreign oil is detrimental to the Third World. In this regard Edward Teller has stated many times that the anti-nuclear movement in the United States will prevent many people in the poorer countries from improving their lives.

The lack of national purpose among Americans would disappear if people took up the challenge presented by the needs of an estimated 800 million people on this globe who live at the edge of existence. Before the developing countries force us to adopt ill-advised schemes, we had better come up with some cooperative arrangements to help our fellow man in need. Not handouts! World trade, which recently reached $1 trillion, could be a major force for improvement.

Certainly there will always be a role for official aid (from governments to governments) in support of foreign policy objectives. Great changes have taken place in the U.S. foreign aid program over three decades. In 1949, President Truman declared in his inaugural address that we should undertake "a bold new program for making the benefits of our scientific advances and industrial progress available for the improvement and growth of underdeveloped areas." The act that followed established economic development of underdeveloped areas for the first time as a national policy of the United States. The justification was similar to all aid programs to follow: national security, humanitarianism, a sound economic investment.

These objectives are still valid today. During the 1950s massive amounts of economic and military assistance were pumped into countries around the Sino-Soviet bloc which were part of regional alliances to "contain" international communism. Major recipients included Turkey, Greece, Iran, Pakistan, Thailand, the Philippines, Taiwan, South Korea and South Vietnam. It was during this period of confrontation between the two superpowers that the non-aligned nations of the Third World first began to identify with each other.

Huge economic projects were undertaken to support strengthening military establishments, with the secondary hope that the benefits would "trickle down" to all classes.

Today, bilateral U.S. aid to the Third World consists primarily of resources that will improve life for the poorest people in the poorest countries. Help is provided primarily in agriculture, nutrition, population planning, health and education.

Additionally, people-to-people assistance through the private voluntary agencies, such as Catholic Relief Services, Church World Service and CARE, has been extremely effective. This aid is not only reaching significant levels (over $800 million in 1977) but is expanding beyond mere charity into developmental activities.

What should our government do to help the poorest countries develop and improve the condition of their lowest-income people? I would suggest:

—Allow domestic U.S. oil prices to increase. This one action alone will reduce demand for foreign oil and spur domestic production and the development of and search for alternative fuels.

—Increase funding through multilateral assistance channels, including projects for petroleum exploration and production in the poorer countries.

—Continue bilateral aid for foreign policy purposes, concentrating on basic needs, such as agricultural production, in the poorest countries.

—Reduce all barriers for the maximum importation of Third World products, particularly manufactured goods.

—Support U.S. corporations in the transfer of technology and in the development of appropriate technology for the Third World.

We must keep in mind, however, that what poorer countries need most in order to develop are internal changes involving their agricultural, land-reclamation, irrigation, credit, investment and other policies. Investment from abroad is secondary to the efforts of the developing countries themselves.

I believe we are at a particular time and place in history when many of us can take some actions that will significantly help the Third World, our major allies, our own country and ourselves.

Some aspects of American society and Americans themselves have been termed "overdeveloped" by one foreign observer. To the extent this is true, some voluntary reduction in the consumptive behavior of Americans might be desirable in its own right. A study by SRI International shows that as many as 3% of Americans have adopted a lifestyle referred to as "voluntary simplicity." These are people who practice organic gardening, eat natural foods, conserve energy and generally live modestly in a way that does not harm the environment. This sounds like a description of our subsistence farmer in the Third World with one exception—his simplicity is not voluntary.

The point I would like to make here is that a reduction in energy demand and inflation now would benefit everybody. And, if we help poorer people advance, we will have the opportunity to help ourselves in the short run as well as influence changes which will affect us in the future. ☐

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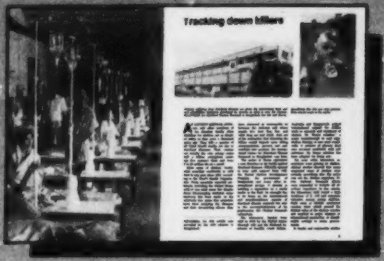

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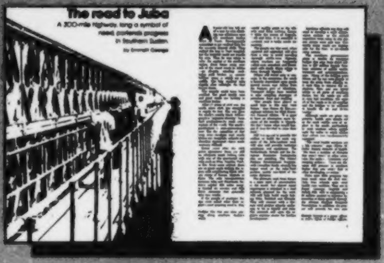

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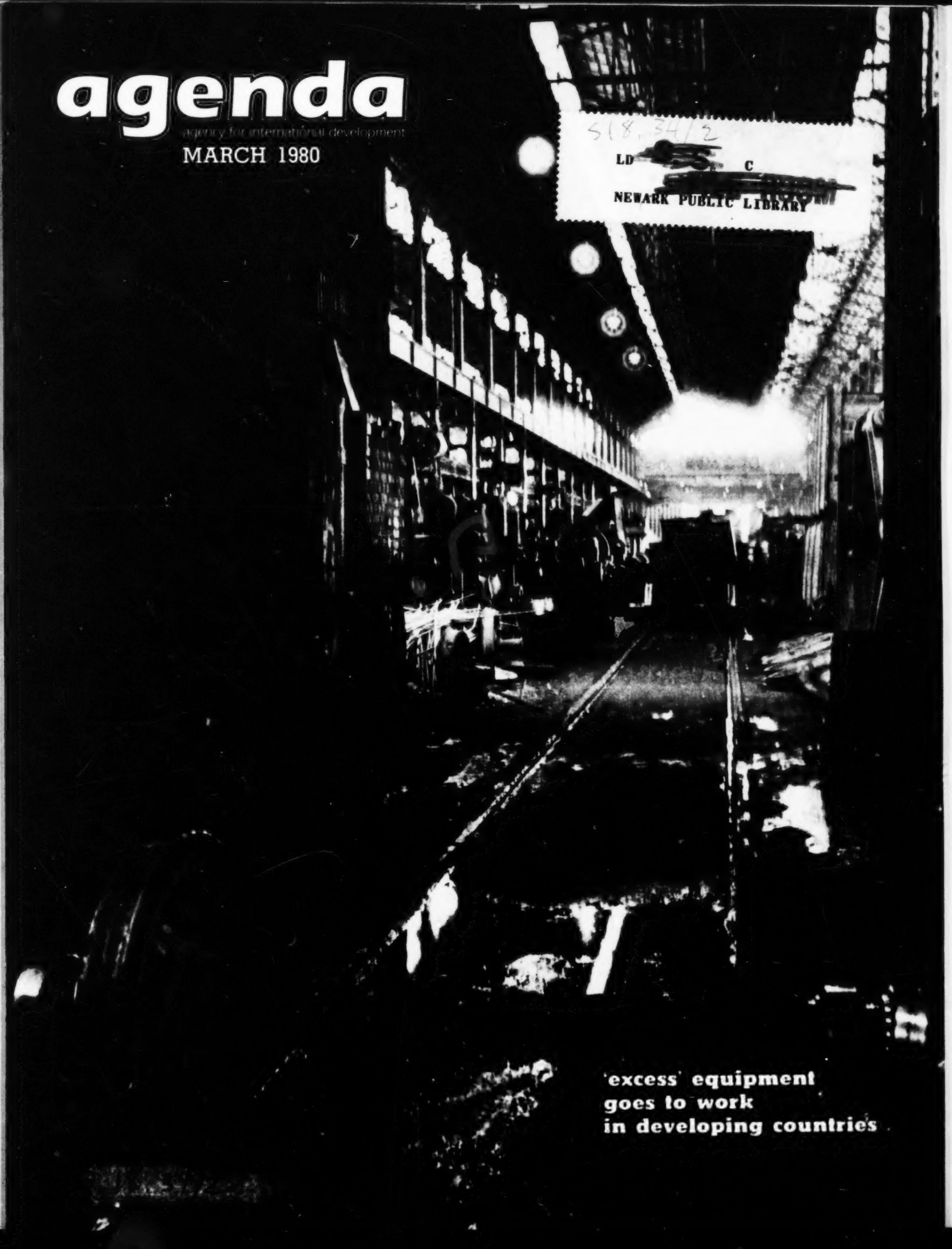

'excess' equipment
goes to work
in developing countries

DEVELOPMENT UPDATE

What happens when a Third World country grows fast? Wages go up, that's what. At least they did in India, Pakistan, Bangladesh and Indonesia during the 1950s-1970s, according to a recent AID-funded study by G. F. Papanek. As farm income increased, new businesses had to offer higher salaries to attract workers away from family farms.

Appropriate technology? In Iria Jaya, the Indonesian portion of New Guinea, pigs are used as an organic "plow." They are turned loose in a field just before planting and in a few days tear up the ground looking for roots, fertilizing in the process.

The clock's running backward: In the past few months, according to *Time* magazine, the price of tractors in rural Thailand has fallen 20% as fuel has become scarce and expensive. Prices of water buffaloes, which do not consume diesel fuel but do produce free fertilizer, have soared.

Weather has dealt a double blow to Mexico's farmers—drought and frost. One-tenth of the corn crop and a third of the bean harvest were lost, costing hundreds of thousands of poor farmers their entire year's income, reports the *Washington Post.* One result: Mexico will step up its grain imports by 20% this year, sparking renewed debate over the government's policy of using oil income more for industrial development than for rural development. A second result: U.S. officials predict a sharp increase in illegal migration to the United States.

A two-cow plant would be large enough to make tobacco curing by cow dung gas profitable even for a poor farmer in Bangladesh. Tobacco is one of the most important cash crops in Bangladesh. Until recently the most common form of curing was by the sun and air, which produces inferior cigarettes. According to a report from the Bangladesh Agricultural Research Institute in Dacca, the scarcity and high cost of coal and firewood discouraged tobacco farmers from improving their drying methods. But producing methane gas from cow dung is simple and inexpensive, and the dung is readily available.

Understanding development: The major contributions of T. W. Schultz, co-winner of the Nobel Prize in economics, to the understanding of Third World economic development are 1) a better understanding of agriculture's role and 2) the concept of human capital—i.e., investment in people—as part of a country's capital accumulation. Writes Marcelo Selowsky in *Report,* published by the World Bank: "Contrary to the beliefs of the time, Schultz viewed traditional farmers as 'poor but efficient' and argued that they would respond to new technologies if they would prove profitable. New inputs, investment in training, and provision of incentives were therefore crucial in an agricultural policy. . . . By arguing that agriculture can be an important and dynamic source of economic growth, Schultz challenged conventional wisdom, which basically neglected agriculture in favor of the industrial sector."

When an economic event occurs, like OPEC's sharp rise in oil prices, who knows where the reaction will end? Here's a chain of events that seems to be benefitting Peru. OPEC's action caused a weakening of the dollar. That started the recent explosion in the price of gold. When gold soared, so did silver prices. So Peru, a leading exporter of silver, stands to earn about $1 billion this year selling silver in other countries, compared to $270 million last year, according to the *Journal of Commerce.*

Aid to small farmers alone isn't enough to alleviate rural poverty, writes Milton J. Esman of the Cornell University Center for International Studies. Too often this aid ignores large numbers of landless peasants or those whose holdings are too small to provide a family livelihood. These people comprise 90% of the rural population of Bangladesh and Pakistan; 80% in Bolivia, El Salvador, Guatemala and the Dominican Republic; and about 50% in the Philippines and Sri Lanka.

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Photo credit: Kay Chernush, p. 3; AID, p. 5, 9, 12-14, 16; CIMMYT, p. 6-7; Carl Purcell, p. 15, 20. Cover: Jeanne Tifft.

Cover: Railroad equipment is refurbished before sale to a Third World nation. Sales of "excess property" help stretch the foreign aid dollar. See story on page 12.

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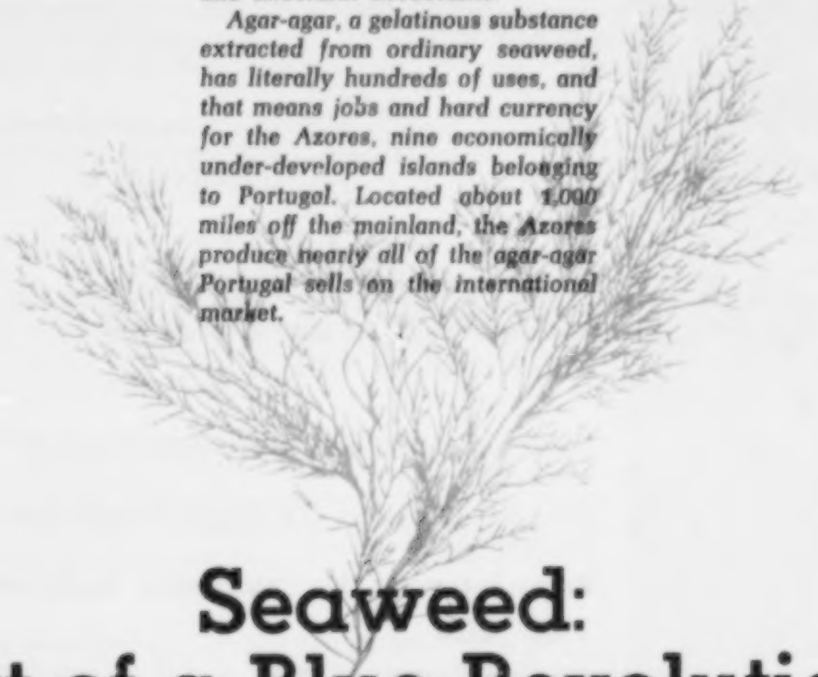
Douglas J. Bennet Jr., Administrator
James W. McCulla, Director
Office of Public Affairs

Press and Publications Division,
Office of Public Affairs
Agency for International Development
Washington, DC 20523
(202) 632-8351

Edward R. Caplan, Division Chief
Lee Mullane, Editor

It's used to grow bacteria and keep toothpaste in the tube. It makes ice cream smooth and pudding thick and keeps the chocolate in chocolate milk afloat. It makes candy bars last longer and keeps canned hams from bruising. It's used in glue, shoe polish, transistors and underarm deodorants.

Agar-agar, a gelatinous substance extracted from ordinary seaweed, has literally hundreds of uses, and that means jobs and hard currency for the Azores, nine economically under-developed islands belonging to Portugal. Located about 1,000 miles off the mainland, the Azores produce nearly all of the agar-agar Portugal sells on the international market.



Seaweed: Part of a Blue Revolution?

Harvesting seaweed is a 'natural' for coastal Third World nations.

text and photos by
Kay Chernush

In a good year, Portugal is the third largest agar producer in the world, close behind Japan, which consumes all it produces, and Spain. This year's seaweed harvest in the Azores is expected to net $3 million.

The demand for Azorean agar has tripled in the last three years following a slump that saw one of two working factories shut down. The industry's rapid recovery—and the reopening of that factory—can be attributed to several factors. A growth in worldwide demand for agar has increased its value by 30%. The Azorean regional government has shown signs of lifting restrictive taxation policies and of providing incentives for the private companies and the cooperatives harvesting seaweed and producing agar.

Not the least of the factors leading to the industry's revival is the work of marine biologist Richard Fralick. Fralick is designing a broad resource management plan for *pterocladia*, the agar-producing algae collected along the islands' jagged coasts. On sabbatical from Plymouth State University in New Hampshire, he is now on his third AID-sponsored assignment in the Azores. His work will give the government information essential to preserve and manage one of its most economically important natural resources.

Fralick's work centers on scientific research but extends into several other areas, all vital to the region's economy. The Azores are the least developed part of Portugal, itself the second poorest country in Europe. Fralick's findings—including how the algae reproduces and how best to harvest it—are already helping the seaweed industry boost production. And this is improving employment opportunities and resource conservation.

Not content with second-hand reports, the scientist digs for information to supplement official records and his own laboratory findings. This means following the people who collect seaweed and visiting the factories where it is processed. All along the way he is quick to offer practical suggestions for better results.

"If we're talking about algae and harvests, we've got to talk about overharvesting, world markets, how many people are employed," he explains. "Not only how much profit the big factory can make, but how much the retired fisherman, or the little old lady can make—the people who go pick seaweed out of rocks in the afternoon."

The image of little old ladies picking their way over tidal basins to supplement their family income is no fanciful exaggeration. The problems of unemployment and underemployment in the Azores are real and serious. So serious, in fact, that for decades, this region has suffered a net population decrease as people have left in search of jobs and a better life. In 15 years, from 1960 to 1975, 35% of the Azorean people left the country.

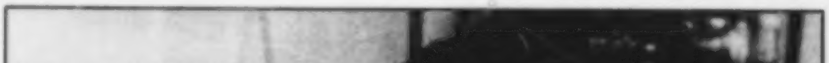
Once these startling beautiful, mist-shrouded islands were an important port-of-call for ships bound for the New World and returning from India. During the 18th, 19th into the 20th centuries, American whalers regularly put in at Faial and Sao Miguel to take on stores and sailors. Even today Azorean whalers still use the old Nantucket-style whaling canoe and shout "Blows!" whenever they spot their prey. But with the advent of ocean liners and jet planes, the Azores' importance — and fortunes — declined.

Agriculture and fishing, the mainstays of today's economy, have remained generally backward, unchanged for generations. The rocky volcanic soil produces enough to feed the 244,000 people, but the land, divided and re-divided over the years into ever smaller parcels, yields a poor livelihood. There simply isn't enough to go around.

Agar offers a hope for a return to a prospering economy, and so Fralick pushes on.

Already the factories provide full-time and seasonal work for about 500 people; anywhere from 4,000 to 8,000 Azoreans derive some income from collecting and drying algae, which they provide to the factories. Even the novices —unemployed workers, children, women with time on their hands, retired fishermen or farmers whose crops are in—can make $3 an hour straight cash simply by wading into the ocean and netting the algae that floats in on the tide. Divers make a

Divers set out to collect algae for study.



Marine biologist Richard Fralick focuses his research efforts on **pterocladia**, *the agar-producing algae.*

fairly consistent $66 a day, not bad even by U.S. standards, Fralick points out.

But while the salary is good, not enough people are employed as divers. In fact last year the shortage of divers meant that one of the boats sat idle throughout the entire harvesting season. Fralick knows there are many who could be diving but who can't qualify for licenses. A diving license requires a seventh grade education; most people leave school after the compulsory four years. Fralick would like to see the requirements made less restrictive, and the pay for the algae collectors raised.

He has other concerns as well. Divers often pull up algae, roots and all, destroying the plant. He wants to introduce better ways. People lay their seaweed on roads to dry, where it is run over by passing carts and cars. And while this solves one problem, it creates a more serious one. The wheels wear off and crush calcium-like growths on the algae, but the traffic causes tarmac and dirt to mix with the seaweed, and this means its quality—and its market value—are reduced.

His energetic involvement with all aspects of agar production takes a lot of time, but Fralick is still able to concentrate most of his effort on research.

Whenever the sea is calm, Fralick and his student assistant pull on wet suits, load their rubber Zodiac boat with compressors and go out to explore the sheer coastline of their home base, Terceira, and the other islands. They note grazing patterns of fish and bring up countless specimens of algae, which they later study under a microscope, catalogue, dry and press.

Already they have catalogued 13 algae species, some of which had never before been recorded in the Azores. They are cataloguing so much material, in fact, that Fralick plans to present complete collections to the Smithsonian Institution, the fledgling marine station on the island of Faial and the University of Lisbon, whose national collection was destroyed in a recent fire.

A fourth collection he will set aside for himself and a fifth will be used for identification purposes. When his research is completed next autumn, Fralick expects to have a thorough understanding of all the marine algae in the area. "With this I can make solid recommendations," he says.

By far his most significant discovery has been how *pterocladia* reproduces. But more important than that will be finding out when it reproduces, and that is the challenge facing them now.

"In terms of conserving a resource year after year after year, it's probably the most important piece of information the Azoreans have to have," Fralick explains. "Yet it doesn't exist today." Once he determines the plant's time table, however, the harvesting season can be adjusted accordingly.

Fralick prefers grappling with "now problems" to contemplating abstractions behind ivy-covered walls. Because of the urgent need for the transfer of technology to developing nations, international development is a wide-open and exciting field in which scientists can make important contributions.

"Some of the old bearded scientists I know in my field would treat what I'm doing lightly, because they never consider economic or applied science. But for me it's far more challenging to do something in science that's going to benefit someone."

Right now, the agar industry holds great potential for coastal Third World countries, from Haiti to the Philippines, to Guinea Bissau. It's a natural wherever there is a supply of unskilled labor, and seaweed, Fralick says. ☐

Kay Chernush is a photographer-writer in AID's Office of Public Affairs. Her article is the second in a series on U.S. economic assistance to Portugal.

Charting the blue revolution

A Blue Revolution, bringing benefits possibly greater than those of the Green Revolution, is predicted by some marine biologists. With simple improvements in the cultivation and harvesting of food from the sea —plants, animals and fish—the potential yield of worldwide aquaculture is already 100 million tons. With advanced techniques, such as those perfected at the Woods Hole Oceanographic Institution, that yield can probably increase ten-fold in the next decades, says marine biologist John Ryther. Aquaculture can be done almost anywhere: along coasts or even in Midwestern plains. The major emphasis of aquaculture is on fish farming, but plant and seaweed farming is also important. Today seaweeds are already used as a source of vitamin C, poultry meal, food stabilizers, and meat and fish preservatives. Burgeoning populations and growing shortages of arable land, particularly in Asia, Africa and Latin America, make the development of aquaculture urgent.

And what about the Green Revolution?

It goes on, still one of the great weapons against global hunger.

By Jerry E. Rosenthal

Remember the Green Revolution—the dramatic breakthrough in agriculture that brightened the hopes of an ill-fed Third World a decade ago?

It's alive and well, and still one of the great weapons in the battle against global hunger. Some of the glamour has dimmed, but the engine that powered the "revolution"—research and development of foods grown and eaten in the developing countries—continues to function.

The big question is—does the world know how and does it have the resolve to take advantage of what has been learned and what can be achieved?

CIMMYT, the international agricultural research center in Mexico where high-yield wheat, along with the so-called miracle rice developed in the Philippines, sparked what came to be called the Green Revolution in the late 1960s, is working on the answer.

"By the year 2015, the world must produce twice as much food as it achieved in the past 12,000 years."

That verdict comes from Norman E. Borlaug, director of the wheat program at CIMMYT, and winner of the 1970 Nobel Peace Prize for his work in breeding new varieties of wheat. What his statement means is that the 3.6 billion tons of food produced yearly in the world today must be doubled in 35 years.

Little cooperation in the international community and inequitable income distribution make world hunger a growing concern. Meanwhile, a predicted 8 billion people will have to be fed in 2015—almost twice as many as the current 4-plus billion.

One of the solutions is to make each acre of land produce more than it does now. To do this, new, higher yield varieties of wheat, corn and other grains must be developed and tested for suitability in different climates.

That is the job of CIMMYT, one of the 12 international centers forming a worldwide network called the Consultative Group on International Agricultural Research.

With an annual budget of $13 million—25% of which comes from

AID—and several agricultural sites around the country, the center's staff of about 80 researchers has devoted itself to developing varieties of grains that are more resistant to disease, produce more per acre and are more nutritious.

The center's most spectacular product to date is wheat.

In the 1950s, Borlaug began to experiment with seeds that had been produced in the United States by crossing a Japanese dwarf variety and another type called Brevor. The Norin-Brevor cross laid the basis for achieving a much higher-yield and more disease-resistant wheat.

After thousands of further crosses and trials in the 1960s, new Mexican varieties were released and successfully grown in India and Pakistan.

Today, the descendants of these semidwarf, high-yield varieties are being harvested on every continent, providing the bread, chapati, couscous, semolina, macaroni and noodles that feed more than one-third of the developing world's population.

Wheat output has soared 50% over the past 10 years, surpassing all other grains and outpacing the 30% increase in population. Rice has shown a rise of 27%, and even sorghum and millet, the poor relations in the cereal family, have gained over the decade.

But the hope of the tropics and subtropics—where the world's hungriest people live—is maize, what Americans call corn. It was left behind in the high-yield breakthrough of the 1960s, now ranking third in world production, behind wheat and rice.

CIMMYT is the keeper of the largest corn-gene bank in the world, from which the breeders develop their new lines. The seeds are kept in a vault at a temperature of 32 degrees F and have a shelf life of 25 years. Backup duplicates are stored in Fort Collins, CO, in a vault where the temperature is 18 degrees below zero. These will last 100 years.

So far, new varieties of maize have accounted for a 38% boost in production. The center's breeders believe that successful short-stalked, high-yielding, disease-resistant and more nutritious varieties will come soon and help feed a larger future generation.

But a larger future generation is just the obvious, and not the only, problem facing the center.

Borlaug, who constantly treads the croplands of the developing countries to discover the problems and needs of the farmers, sees poverty as the biggest immediate obstacle.

"It's not that we're not producing enough food right now," he said. "We are, but it's not equitably distributed. Too many people don't have the money to buy it.

"For example, India in 1977-78 produced 125 million tons of grain. This is 10 to 12 million tons more than needed—based on present diets—but millions of Indians are too poor to buy it.

"The developing countries need public-works projects in the rural areas to enable the rural poor to buy food. Small factories and other localized activities can provide the jobs that are needed."

Borlaug believes China may have found a way. "On two trips to mainland China," he said, "I never saw a hungry person. Everyone seems to be working. The Chinese have done a creditable job in building up rural industry and food.

"I believe planners should think small when it comes to agriculture. And I think we need more people looking at the overall picture rather than specialists doing the planning. I would like to see bronze plaques erected for every small irrigation ditch that's dug. This is the type of water management that can really help the small farmer. Big dams have their place, but the small irrigation ditch is vital."

Some agricultural development

By 2015, the world must produce twice as much food. One way may be high-yield grains.

projects and programs in developing countries, he claims, are either misbegotten or misdirected. He cites a situation in Pakistan where with construction of the massive Tarbela Dam, largest earthen dam in the world, timber areas previously untouched became available to private interests. They clear-cut entire hillsides, causing vast erosion and hastening the silting of the reservoir.

"I was there on a rainy day," Borlaug said, "and soil once held by trees was pouring down into the Indus River like a cascade of chocolate."

A CIMMYT staff member sprays an experimental variety of high-yield corn.

The scientists, technicians and professionals at CIMMYT all emphasize collaboration with local farmers.

When Dan Winkelmann, an economist, first came to the center, he rented a six-acre farm nearby. He worked it as many Mexicans do—without sophisticated equipment—to grow maize and beans.

"There is no free lunch in farming," he said. "You're constantly weighing the biological feasibility of what you're doing against the economic feasibility. There has to be give-and-take, which means early collaboration among all research disciplines studying aspects of production."

Other staff members, like Narendra Lal Dhgawan on the maize breeding staff, serve as key links between the breeders and the countries testing new varieties emerging from the international program.

This year Dhgawan is airfreighting half a million envelopes containing seeds for 700 trials in 88 countries. He will feed the results into a computer and send printouts to all participants in the trials and others interested in the program.

These printouts can tell a scientist in Turkey, for example, that a certain variety of maize grown in Egypt might do well under similar conditions in his country.

Because wheat is such a universal food and is eaten in so many ways, the varieties developed at CIMMYT are being evaluated continually in the Wheat Industrial Quality Laboratory, headed by Arnoldo Amaya Oelis. Bread wheats—both winter and summer—are analyzed for their milling and baking qualities. Amaya and his staff work with 20,000 lines of bread wheat, 8,000 lines of durum — the wheat that becomes pasta—and some 2,000 lines of triticale, a high-protein cross of durum wheat with rye.

Some 10,000 men and women from the developing countries have come to the center for in-service training in research techniques so that they may practice them in their own countries. In addition, other professionals spend from a week to several months working on specific problems in wheat and maize.

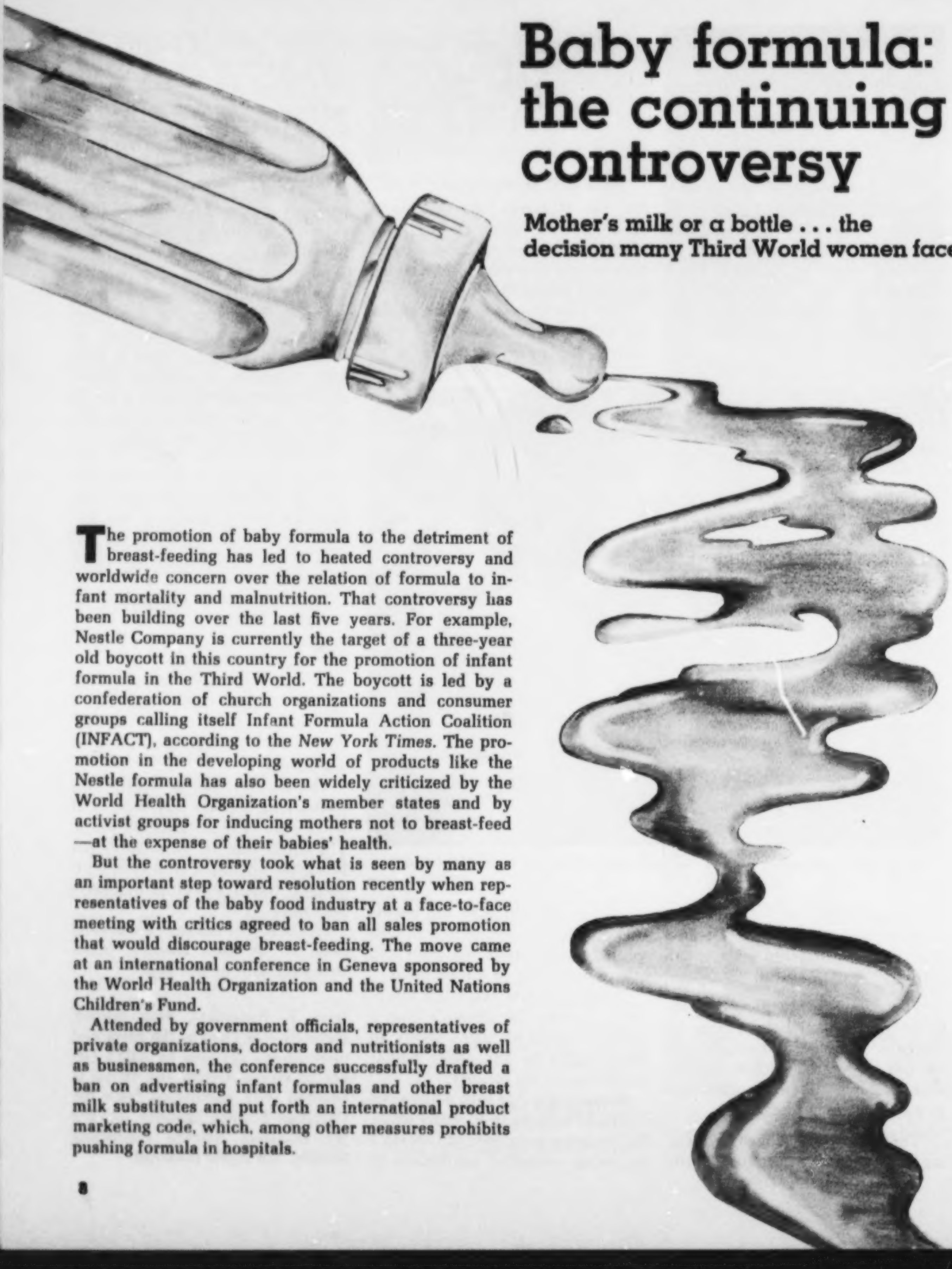
Scientists at the center do not look on themselves as "revolutionists" in the field of agriculture. But they are keenly aware of the importance of their work and the impact it can have on the future of the world.

Their attitude is symbolized by a modest exhibit in Mexico City's magnificent Museum of Anthropology. Amid the massive stone carvings and impressive relics of the Mayan, Toltec, Olmec and Aztec cultures is a small display of corn, dug up from the centuries-old ruins and tombs.

The smallest ear is barely two inches long and has tiny kernels. It dates back several thousand years. The other ears in the display get progressively larger with each agricultural improvement of our early ancestors.

At the end of the case are several ears of the 20th century, many times the size of the first.

Jerry E. Rosenthal, now retired, formerly was chief of the press and publications division in AID's Office of Public Affairs. His article is adapted with permission from the Christian Science Monitor. **© 1979 the Christian Science Publishing Society. All rights reserved.**



Baby formula: the continuing controversy

Mother's milk or a bottle . . . the decision many Third World women face.

The promotion of baby formula to the detriment of breast-feeding has led to heated controversy and worldwide concern over the relation of formula to infant mortality and malnutrition. That controversy has been building over the last five years. For example, Nestle Company is currently the target of a three-year old boycott in this country for the promotion of infant formula in the Third World. The boycott is led by a confederation of church organizations and consumer groups calling itself Infant Formula Action Coalition (INFACT), according to the *New York Times*. The promotion in the developing world of products like the Nestle formula has also been widely criticized by the World Health Organization's member states and by activist groups for inducing mothers not to breast-feed —at the expense of their babies' health.

But the controversy took what is seen by many as an important step toward resolution recently when representatives of the baby food industry at a face-to-face meeting with critics agreed to ban all sales promotion that would discourage breast-feeding. The move came at an international conference in Geneva sponsored by the World Health Organization and the United Nations Children's Fund.

Attended by government officials, representatives of private organizations, doctors and nutritionists as well as businessmen, the conference successfully drafted a ban on advertising infant formulas and other breast milk substitutes and put forth an international product marketing code, which, among other measures prohibits pushing formula in hospitals.

Formula is too expensive for poor families in developing countries, the experts say. Furthermore, when mothers fail to follow directions and water down the formula to make it go farther, or allow the bottle and nipple to become contaminated, babies get sick. Although not binding, the ban and the marketing code represent a major concession by the formula manufacturers, according to observers.

"The question of formula versus breast-feeding is an emotionally packed one," acknowledges Martin Forman, director of AID's nutrition office and head of the U.S. delegation to the world conference. "While nearly everyone agrees on the promotion of breast-feeding, there is sharp disagreement on the role of infant formula and the extent of its misuses." Critics claim that misuse is widespread. Formula companies maintain that examples of misuse have not been adequately documented and do not represent the prevailing situation in most countries.

International attention focused on the problem when the Swiss-based Nestle Company, S.A. in 1976 filed a libel suit against the Swiss Action Group for Development Policy following the publication by that organization of a brochure entitled "Nestle toten Babies" (Nestle Kills Babies). The brochure, originally published in English by the London charity, War on Want, claimed that Nestle was responsible for the deaths or permanent injury of thousands of children throughout the developing world. It charged that Nestle used unethical and immoral sales methods to sell its infant foods, and that the products were being bought and used in areas where people have neither the money nor the hygenic conditions necessary to use the products properly. The result, according to the brochure, has been that babies often died. A Swiss judge later found that the brochure title was inflammatory and fined the group's members, but he went on to urge

Throughout the developing world, mothers have been urged to switch from breast-feeding to formula. Yet that switch may be hazardous.

the company to change its advertising practices.

While several international corporations in the baby food business have taken steps to reform their advertising, many critics say developing countries do not need Western-produced commercial baby food products at all. Even in the limited cases where breast-feeding is impossible, there are alternatives ways to feed infants (For example, using a bowl and spoon, which are easily sterilized, is safer than bottle and nipple). Weaning foods, they say, are much better when prepared from local produce which is fresher, and more appropriate to the local culture and environment.

Forman adds that at the onset of the Geneva meeting, participants made it clear that their aim was not to do away with infant formula, but to make sure it is used to the infants' best advantage. The overriding need, they agreed, is for health care systems to promote breast-feeding and proper weaning practices, and to assure that both mother and child enjoy good health.

Ideally, breast-feeding should start immediately after birth and should be maintained as long as possible with appropriate supplements after four to six months. Other foods introduced too early may prove harmful to both mother and baby. On the other hand, if the baby does not eat solid foods until much later than four to six months, dietary deficiency will result.

Conference participants also agreed that the contraceptive effect of breast-feeding should be emphasized, along with the need for additional family planning methods that do not interfere with lactation. Also suggested was paid maternity leave of not less than three months after the birth of a child for mothers employed outside of the home, and convenient facilities so mothers can continue breast-feeding. Education, training and information on maternal, infant and child nutrition also are important, they said.

What the conference will mean for future sales and use of infant formula in Third World countries remains to be seen.

According to the *New York Times*, there were "fears expressed by activist groups opposed to all promotion of infant foods in underdeveloped countries that the recommendations left gray areas that the baby-food industry could exploit. . . ." But those fears were dismissed by Dr. Halfdan Mahler, director general of the World Health Organization. The industry, he said at a news conference, "is now under a 'moral obligation' to change its practices and to refrain from 'pushing promotion and advertising.' "

And what does that mean? According to Ian Barter chairman of a British firm, speaking for the industry and quoted in the *Times:* "The consensus means that anything that is a direct sales promotion is out. Barter said, "This is an extraordinary concession from an industry like ours."

In the meantime, what is AID doing to improve infant and child nutrition? According to Forman, under a maternal and infant nutrition project that began in October, for example, AID will help developing countries and private voluntary organizations expand maternal and nutrition programs.

Tina Sanghvi, manager of the project, reports that many AID missions already have expressed interest. A nutritionist who has worked in Asia and South America with CARE, Sanghvi is optimistic. "The needs are universal," she says, "but it's important to gear programs to the particular circumstances in a country and in local areas. For instance, a typical problem in urban areas is that breast-feeding is stopped too early whereas in rural and more traditional areas breast-feeding alone, without the necessary supplements, may continue long after the child is six months old.

AID also recently sponsored a special symposium on infant feeding in conjunction with the Third Asian Congress of Pediatrics. A similar meeting will be held in Latin America.

"We're prepared to help wherever there's a need—either to improve an existing program or to set up a new one," Sanghvi emphasizes.

The project is organized along guidelines developed by the National Academy of Sciences. One problem cited by the Academy was the lack of a central clearinghouse for information on infant feeding and child nutrition. Under the AID project, the American Public Health Association will fill this role and publish a newsletter in English, Spanish and French to alert readers to successful programs and up-to-date research findings.

Other efforts under the project, expected to run as long as five years, include a consortium—made up of the Education Development Center, Save the Children Federation and Manoff International—to assist countries in education and training programs, including setting up mass media campaigns, developing school curricula and training field workers.

The Population Council, along with Columbia and Cornell universities, will collaborate with countries to study infant formula marketing practices and local trends in infant feeding to help analyze how policies, legislation or other activities could improve infant nutrition and feeding practices. And under an existing agreement with AID, the U.S. Department of Agriculture will help countries develop and market locally produced weaning foods and promote home-prepared mixes. ☐

VIEWPOINT:

Are we over-developed?

by Robert B. Anthony

Robert B. Anthony is with the Grant Wood Area Education Agency, Cedar Rapids, Iowa.

Often we view the so-called developing nations with self-satisfaction, from the perspective of our vast gross national product. Yet slowly creeping into our consciousness—in the United States, Western Europe and Japan—is the nagging realization that perhaps we are overdeveloped, that we are excessively industrialized and urbanized.

We view energy shortages, natural resource exhaustion, environmental destruction, pollution, inflation, congestion and alienation as separate and unrelated. But could these serious contemporary problems be generated by an over-industrialized and over-urbanized society?

Two hundred years after the industrial revolution a dysfunctional imbalance exists between agriculture, crafts and industry. Witness the United States with only 4% of its population engaged in agriculture. In simpler times most people thought that moving away from an agricultural society was an important index to "progress." But now a few observers are beginning to suggest it is an index of repression.

In the West today, a basic philosophical error is playing itself out in destructive hyper-technology and hyper-industrialization (the material embodiment of a science without limits) and consequent maddening rates of social change—"future shock." It is nothing less than the attempt to deal with people and things as if they existed outside the whole. Out of this narrow vision and approach evolves what amounts to a perverse goal of a limitless science and technology—increasing fragmentation, dissection and manipulation now for the sake of even more fragmentation, dissection and manipulation later. The consequences are too often counterproductive: in the knowledge disciplines, knowing more and more about less and less; at the social and personal level, subjection to more and more alienating engineering and manipulation; and in the natural environment, the plundering and polluting of vast expanses of the Earth.

Out of mothballs into use

Selling excess government property helps stretch the foreign aid dollar.

by Susan Super

In 1945, 718 gleaming new railroad cars were put away, unassembled, in a U.S. Army depot. Intended for use in wartorn Europe, the cars were outpaced by peace. And because of their couplers and narrow European gauge, American rail systems couldn't use them.

Now, some 35 years later, those railroad cars have been resurrected from mothballs; they're hauling freight in Egypt. How they got there is a tale of dollars saved and "leftovers" recycled. It also is a tale of U.S. foreign aid.

Under Foreign Assistance Act provisions passed in 1962, AID obtains non-military equipment and supplies that other U.S. government agencies no longer need. These items then are either used in AID-funded development programs or are sold at "special" prices to "eligible" buyers—friendly countries, international organizatons, the American Red Cross and registered private voluntary organizations. For them the "special" price is anywhere from 25% or below to 99% of the original cost, plus transportation and reconditioning, and a small service charge.

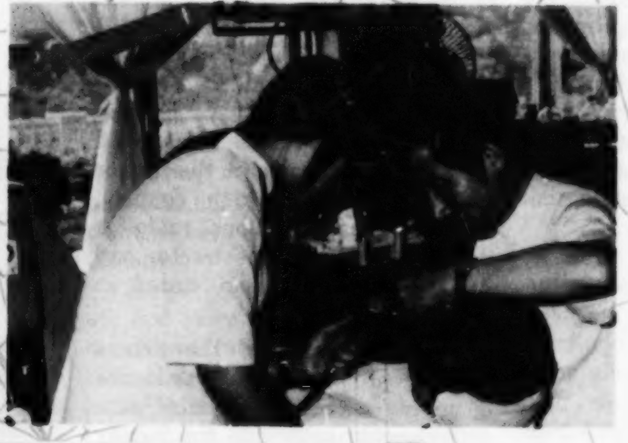
Egypt, whose rail system dates back to 1852 and the British, paid $1.76 million for the 718 cars. It was a bargain: New, they could have cost $21 million. The purchase was made possible by a low-interest, 20-year AID loan.

Egypt's extensive rail system is unusual in the developing world. Yet increasing demands have greatly strained that system's capacity. The excess property program is helping Egypt meet a pressing need. The box, tank and gondola cars shipped to Egypt and assembled at a turn-of-the-century workshop in Alexandria now are carrying 16% of the country's total railroad cargo or an estimated 1 million tons. This includes water to the western desert, molasses to the port of Alexandria, and grain, flour, sugar, coal and other commodities, throughout the countryside.

Since the start of the program, property that originally cost more than $275 million has been made available at low cost to a number of recipients including (in addition to Egypt) the Philippines, Malta, Costa Rica and Tanzania.

Excess property can lower the cost of economic assistance projects. For instance, if a certain amount of aid money is available for building a road in Zaire, using reconditioned excess equipment instead of buying new equipment makes the money—and in some cases the road—go farther.

Approximately 90% of the excess property comes from the Department of Defense, the rest from the Veterans Administration and other federal agencies. The property falls into five major categories: vehicles of all types, heavy machinery, medical supplies, and equipment for electrical generation and heavy construction.



In one month (October 1979) AID sent bedpans and maintenance trucks to Panama; cargo trucks to Syria; electric light bulbs, generator sets, sandbags, jute burlap, and hypo syringes to Israel; a road grader to Tanzania; urine bottles to Thailand; beds and mattresses to Korea; generators to Indonesia; hospital beds, trucks and water pumps to the Philippines; and truck differentials, typewriters, fans and miscellaneous medical supplies to Zaire.

Some recipients who have benefited from the program in the last three years:

- Zaire has received medical supplies, small vessels, cargo trucks, buses and ambulances as well as reconditioned equipment for road construction and rail support, all for $753,000. Comparable new equipment would have cost $1,897,000.
- Haiti has spent $590,000 on medical equipment, bridge-building supplies and reconditioned trucks, buses, ambulances, equipment for road building and maintenance that would have been $1,713,000 purchased new.
- For $697,000 Tanzania received reconditioned equipment for road construction, dump trucks and tools. The price tag for the same items purchased new—$1,303,000.
- International Human Assistance Programs spent $196,000 for unreconditioned medical and dental equipment, power generators, and office and building supplies that would have cost $1,799,000 new. The nonprofit assistance agency designs and supports self-help programs in poor villages of the developing world.

Several years ago the Department of Health, Education and Welfare liquidated a stockpile of emergency health service supplies originally valued at $114 million. Included were a number of "medical equipment set hospitals," each one a 35,000 pound package of emergency medical equipment that fits into a 60-foot van and can be set up as a well-equipped, self-sustaining 200-bed hospital. AID acquired more than 300 of the units and made them available to organizations like Project Hope and Pan American Development Foundation, and developing countries at a cost of $6,900 each. Many of them are still in operation.

The excess property program has several cost-savings features. Originally set up with a revolving account of $5 million to cover overhead—staff salaries, building rental and costs for storing, reconditioning and transporting equipment—the program hasn't received another dime since then.

"We operate very much like a small business," observes William Gamble, chief of the Washington Liaison branch. "Of course, we're not out to make a profit, but the program must be self-supporting. The revolving account is maintained through reimbursements from recipient countries and organizations for services."

The program's success depends on good management, sound technical judgments and common sense as the staff scours extensive lists of government property and scouts out equipment in warehouses for items that could be used—after reconditioning if necessary—to meet the needs of developing countries. The railroad cars now in Egypt, for instance, surfaced after AID equipment specialist Hans Bang spotted them on a list and then checked out the cars for himself. When AID contacted Egypt about the bargain, railroad officials at first thought the cost was so low it must be a mistake and they didn't respond.

Gamble modestly insists, "We're simply a supply organization, nothing glamorous." But he emphasizes the usefulness and efficiency of the program, which prevents waste by putting unneeded U.S. government supplies to good use and saving plenty of money in the bargain.

"That's what is so rewarding about this job—we really have something worthwhile to show for our efforts," remarks Gamble, who was a Defense Department supply official for 19 years before joining AID in 1961.

He explains how the program works. "First of all, there's a difference between 'excess' property and 'surplus.' When a federal agency decides some equipment is not needed, it is first declared 'excess.' AID, along with other agencies and the states, can claim the property for use in their programs —at no charge for the items themselves. The General Services Administration (GSA) monitors this redistribution but does not store or ship the items. Those costs must be paid by the agency or state that wants the excess property.

"If there are no takers after 60 to 90 days, the agency releases the property and declares it 'surplus,' which GSA then sells to civilians. So surplus items are actually sold, whereas excess property is provided free to agencies, which pay only the transportation and reconditioning cost" (or is sold at a discount to eligible recipients, like Egypt).

Headquarters and the central inventory point for the AID excess property program is at New Cumberland, PA, with field offices in Salt Lake City, UT; Lathrop, CA; Kaiserslautern, Germany, and Panama City, Panama.

Authority for "advance acquisition" has made the staff's job easier in matching supply and demand. "Property is 'excess' for only a short time," Gamble points out, "and we might not have a request when a good crane is available, for example—although as soon as the 60 to 90 days are up, we would get a request. So AID is allowed to acquire equipment regularly in demand—like bulldozers—and hold it until a specific request comes in. For example, we acquired a tractor from Fort Bragg, NC. We notified AID missions about the tractor and when a request came in, the tractor was shipped directly to the country. That saved any additional costs for double handling if the tractor had first been shipped and stored in New Cumberland."

AID makes use of the excess property program as the first source of supply whenever practical as a dollar-saving substitute for buying new equipment. Similarly, the excess property helps stretch aid dollars for developing countries and organizations that benefit from the program.

In the end, there's a direct impact on human lives:

Medical supplies made available to the International Human Assistance Program boost care for the poor who use clinics in Korea. Mobile clinics in the Philippines bring medical and family planning services to rural towns. Medical and other supplies from the program help the Red Cross meet disasters overseas. In African countries, 'excess' road building equipment helps build the local skills and the transportation links a country needs to develop its agricultural and economic potential. ☐

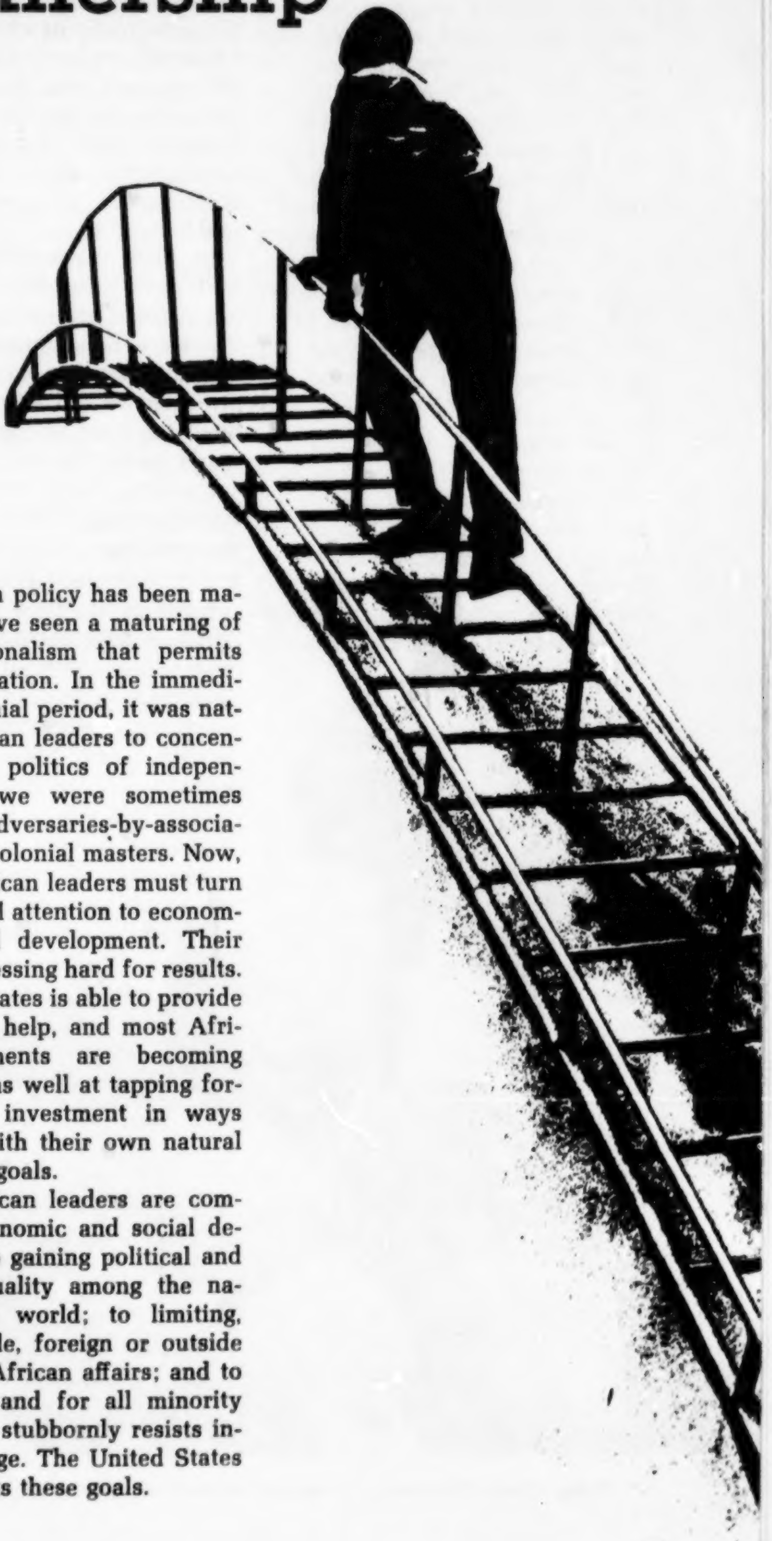
Boxcar parts await transfer from the Alexandria docks to a nearby assembly plant.

Susan Super is a writer in AID's Office of Public Affairs.

The U.S. and Africa: a growing partnership

The rest of the 80s promises a more active and sensitive U.S. policy toward African nations

by Douglas J. Bennet Jr.



Before entering the last two decades of the 20th century, let's look back at the previous two decades: They have been tumultuous ones for sub-Sahara Africa. Today there are 46 independent states. Just prior to 1960 there were only two. In the past two decades enormous political, cultural and economic changes have swept across the continent.

Change came so fast that in the 60s and early 70s, U.S. policy makers found forces racing ahead of their ability to adjust to the unfolding of African nationalism, and the breakdown of colonial empires. Although Africa's influence in world affairs grew significantly in the early 1970s, U.S. policy continued to view Africa as weak and unimportant economically and politically. U.S.-Africa trade was minute and our economic assistance to Africa, a token—only 6% of our worldwide totals. U.S. policy held that Africans should find their own answers to worsening problems.

Since 1976 a more active and sensitive U.S. policy toward Africa has emerged. In contrast to the 60s and early 70s, today the U.S. is actively searching for peaceful solutions to conflicts that persist in several corners of Africa. Relations with most African states have improved markedly. U.S. economic assistance to Africa had risen to $443 million in fiscal 1979, doubling the 1975 level. This still represents only 9% of our total worldwide assistance. However, our fastest growing economic aid program today is in Africa.

As our own policy has been maturing, we have seen a maturing of African nationalism that permits closer cooperation. In the immediate post-colonial period, it was natural for African leaders to concentrate on the politics of independence, and we were sometimes viewed as adversaries-by-association with ex-colonial masters. Now, however, African leaders must turn more time and attention to economic and social development. Their people are pressing hard for results. The United States is able to provide some needed help, and most African governments are becoming more expert as well at tapping foreign private investment in ways compatible with their own natural development goals.

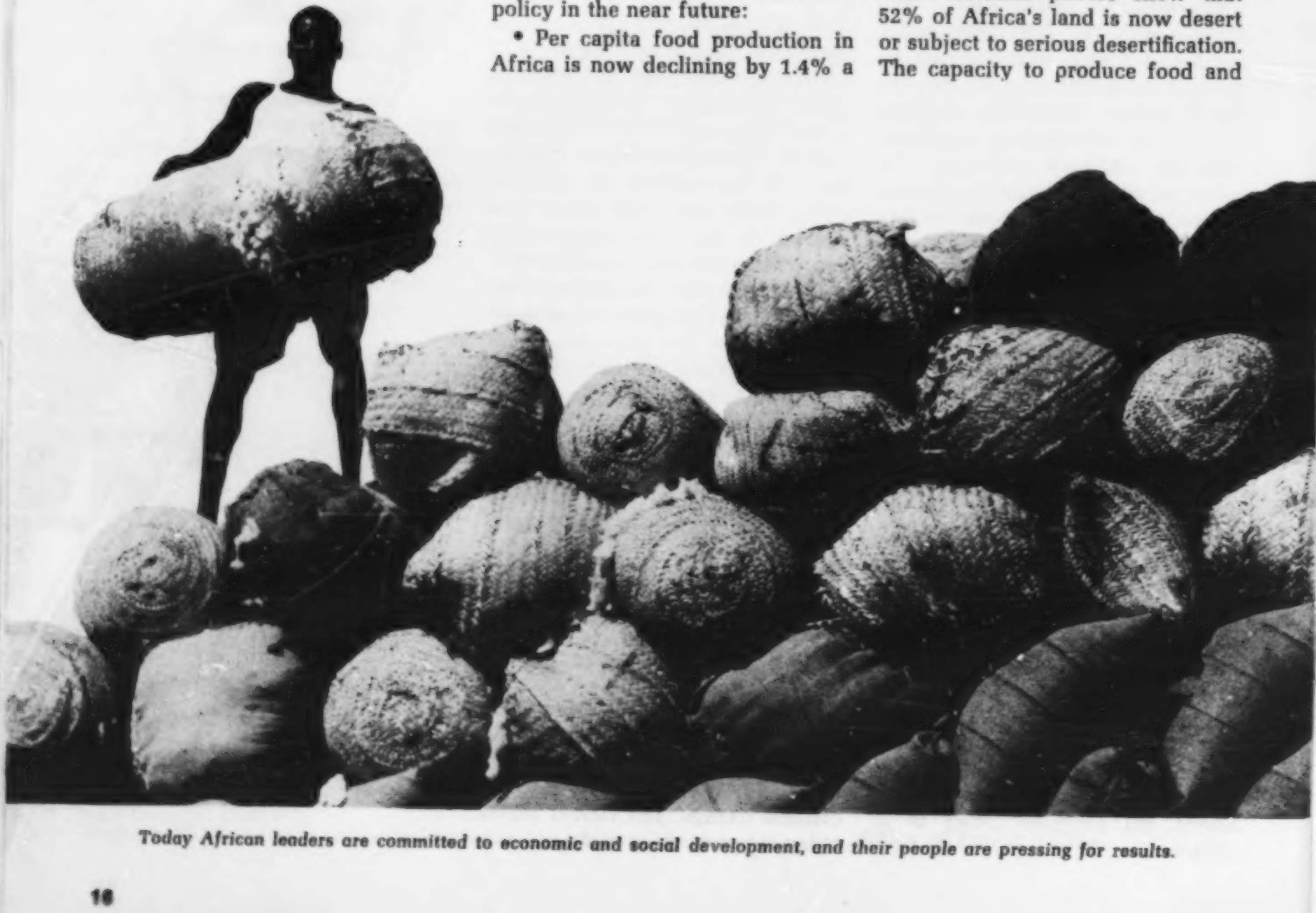
Today African leaders are committed to economic and social development; to gaining political and economic equality among the nations of the world; to limiting, where possible, foreign or outside meddling in African affairs; and to ending once and for all minority rule where it stubbornly resists inevitable change. The United States today supports these goals.

Moreover, we realize that the long term success of our Africa policy depends on the not-too-distant realization of African aspirations for development. This represents the most difficult challenge to the United States in its Africa policy of the 80s and 90s. Just when U.S. policy has caught up with Africa's vision of itself, serious and unmet development needs and economic deterioration portend new crises and instability.

In 1978, the average per capita GNP growth for all non-oil-producing African states was near zero. There are indications that the situation in 1979 was worse. Africa is projected to fall much farther behind the rest of the developing world during the next 10 years.

Consider these trends, their potential overall impact on Africa and the challenge they present for U.S. policy in the near future:

- Per capita food production in Africa is now declining by 1.4% a year; from 1960 to 1979 there was no significant shift from Africa's highly vulnerable and predominantly subsistence agriculture. Average per hectare production in Africa lags far behind other developing regions. The increased production that occurred in the 60s and 70s came through expanding the area under cultivation rather than through increasing the yield. International research groups now estimate a food grain deficit in Africa of 23 million tons in 1990. Even assuming sufficient world supplies, balance-of-payments trends suggest that most African nations will have insufficient foreign exchange to finance the food imports they require.
- Desertification, deforestation and erosion are threatening the essential agricultural resource base of the majority of the continent's nations. Satellite photos show that 52% of Africa's land is now desert or subject to serious desertification. The capacity to produce food and



Today African leaders are committed to economic and social development, and their people are pressing for results.

meet basic human needs could be permanently damaged if this land degradation continues.

- Population and urbanization growth rates in Africa, at 2.6% and 9.5% respectively, are the highest in the world. We can anticipate accelerating movements of migrant workers and refugees that will further aggravate food shortages and unemployment, possibly leading to serious social conflict.

- Despite substantial progress in eradicating selected communicable diseases, the majority of Africa's population still has no basic health care. The presence of some debilitating disease in most of the African adult population is a predominant factor in the low productivity of labor. Life expectancy averages 45 years in Africa, compared with 53 years in the developing world overall and 72 years in the United States.

- The World Bank forecasts a real per capita growth rate of less than 1% in Africa during the 1980s.

- Accelerating rates of inflation and deteriorating terms of trade, caused largely by recent energy price increases, will further undermine Africa's fragile economies. An estimated debt service burden in 1990 of 27.6% of export earnings, more than any other region, will seriously reduce Africa's capacity to import food and the capital resources it requires.

- Transportation systems are poor, developed largely for industries that are engaged in taking resources out, with little regard for internal needs and domestic populations. Africa ranks last of all the continents in transport systems. The limited capacity that does exist is so expensive that it discourages investment and raises prices. For instance, it costs more to move a bushel of grain 700 miles from a port city into the interior of any African country than it does to ship it the 7,000 miles from New Orleans to that port city.

In summary, for 70% of the African countries, per capita growth was lower during the 1970s than in the previous decade. This group was, in other words, undeveloping. Unless reversed, the trends I have cited could turn today's development plans into nothing more than tomorrow's short term, crisis oriented, relief programs.

With such serious economic problems in Africa, not to mention here at home, one might legitimately ask: Is there anything we can do to help, even if we want to? Is Africa's development really that important to U.S. interests?

The answers are clearly yes, for several reasons:

- With ever-increasing global interdependence during the 80s and 90s, the United States will become considerably more dependent on regular, dependable supplies of Africa's natural resources. Africa, the least explored of the continents, holds great promise of mineral and petroleum wealth. Today more than 25% of our imported petroleum comes from sub-Sahara Africa, five times what we used to import from Iran. Several of the poorest African countries are only now discovering or beginning to develop important deposits of the strategic minerals—uranium, manganese, vanadium, cobalt, chrome, titanium and bauxite. These are essential for the production of high grade metals for jet engines, for aircraft and for defense and nuclear energy uses in this country, and the earnings they represent are just as essential to the future prosperity of Africa.

- Despite discouraging economic and environmental trends, Africa, with untapped major river basins and extensive land, has the physical potential to produce surplus food grains late in this century, when global deficiencies are projected to reach new records. Africa has the potential for increasing annual production of food grains by 16 million tons from rain-fed fields and 9 million from irrigated land. This would represent a 47% increase over the approximately 55 million tons of cereal produced in 1979.

- We are seeing today important and encouraging political transitions in Africa. Nigeria and Ghana have recently moved from military to civilian rule. Upper Volta and Mali are moving in similar directions. A peaceful settlement in Zimbabwe may now be a reality. . . . These changes should mean more human rights, and more human energies liberated for the task of development. These changes also make it all the more imperative that the African people see more tangible benefits of development progress.

- We should not forget that it was the rise in U.S. exports to the developing world that played a key role in pulling the U.S. economy out of the 1973 recession. Africa is potentially a very important part of that market, depending on the continent's growth and capacity to import.

- Moreover, Africa contains one-third of all independent nations of the world, and all of them voting members of the United Nations. Africa plays a major role in the ongoing North-South dialogue that is equally vital to the welfare of the United States as well as Africa.

But clear interests do not constitute a policy. A policy expressed in material terms is narrow, shortsighted and too much like the colonialism and paternalism that held Africa back for years.

A U.S. Africa policy for the 80s and 90s must offer much more. It must start out with a shared hope for the future of the continent, which is painfully far behind the rest of the world. It must concretely support African aspirations in the drive for racial justice and economic and social development. An affirmative U.S. Africa policy for the next 20 years must state with clarity that we, the most developed of the world's nations, will not allow Africa's alarming economic and en-

An overhead crane stacks rails to be used in building a rail system. Throughout Africa transportation systems are the poorest in the world.

vironmental decline to continue, because it portends political instability and a loss of human potental that are contrary to both U.S. and African interests.

The United States has the wealth and the know-how in both its public and private sectors to help Africa move forward. We know it, the Africans know it, and the world knows it.

Some say African development will take many decades, because it is so far behind. I say we no longer have the luxury of such patience. The test of the realism and effectiveness of our Africa policy in the 80s and 90s will certainly be whether we had the capacity to craft, in full partnership with Africa and with other donors, comprehensive solutions that will reverse the decline in Africa's development progress. . . .

There are some important areas in which African nations can help themselves substantially. There is room in some countries for cautious decentralization and greater local initiative in the development process. A strong central authority, which may have been necessary in the first stage of nation-building, can become a dead end if a few ministries attempt to manage all aspects of development. The greatest single development resource in any country is the liberated energies of its people.

One factor that is particularly important in liberating these energies is seeing that farmers receive fair prices. We frequently see farm prices held down artifically in an understandable but self-defeating effort to protect consumer prices, particularly in politically volatile cities. The result is less food grown and sold, less income for farmers to reinvest, stronger incentives for urban migration and mounting costs for food imports. The transition to a policy that pays farmers an incentive price for their product is always painful, but it's essential. We are prepared to work through these complex issues with the African countries and in some cases help ease the way by judicious use of PL 480 food (Food for Peace).

AID, together with the State Department, is undertaking the following initiatives designed to integrate a more comprehensive U.S. development effort into our overall Africa policy.

First, the establishment of the International Development Cooperation Agency presents a new opportunity for the United States to relate more coherently all of this country's various development instruments to Africa's most serious problems. These include development grants, food aid, technical assistance, non-governmental and voluntary organizations, Peace Corps, Export-Import Bank, trade policy and private sector investment. We are acutely aware of the indispensable role private investment must play in Africa—in the creation of jobs, in overall growth and in establishing a revenue base so that "basic human needs" is an affordable policy and not merely an empty, passing slogan. Concessional funding must not only be increased but used creatively to expand the continent's ability to absorb private sector investment, both foreign and domestic.

Second, we are studying the U.S. general schedule of preference and recently completed multilateral trade agreements to determine why most African countries have been unable to take advantage of the tariff concessions that are, in theory, allowed. From this we will see where and how U.S. trade policy can and should have greater benefits for African development.

Third, we will work in concert with other Western donors and international organizations to design more comprehensive problem-solving programs, rather than piecemeal projects. The major programs needed in food production, environmental reclamation, energy, infrastructure and other areas, can often, by their nature, be undertaken only as multi-donor programs. Following on the Sahel experience, we will be considering more significant multi-donor programs in the Lake Kivu area and in the southern African region. We will be meeting with OPEC donors to identify ways and means for interested OPEC agencies to play a larger development role in Africa. In addition, we will be taking various steps to reinforce Western donor collaboration in

Africa. (The United States recently named a liaison to the newly formed Concerted Action for Development (CADA), a group of six Western donors.)

Fourth, also following our Sahel experience, we will encourage more inter-African cooperation in the various subregions. Many of Africa's difficulties today stem from the fragmentation that occurred in the "divide and conquer" policies of the old colonial empires. Today all the Western donors and many of the African states recognize the political and economic payoffs of institutionalizing African subregional cooperation to resolve common problems, exploit common resources—such as river basins—and enter into selective kinds of market integration. Despite the unfortunate demise of the East African Community, the new West African Common Market (ECOWAS), southern African efforts at economic cooperation and other new efforts deserve our active support. Dormant or ineffective African regional organizations can be animated with new mandates, programs and resources.

The economic progress of Africa may well depend on how effectively many small and fragmented African states can work together. The United States can act as a catalyst in what may become an important new era of African cooperation.

Fifth, the question of increased financial resources is an essential part of any set of new initiatives. We hope to see at least some increases in our concessional aid levels for Africa in fiscal 1981 and beyond.

The United States will seek congressional authority to join the African Development Bank in fiscal 1981. For the first time the African Development Bank is being opened to non-regional capital. The United States would then be the largest single non-regional member.

These are but a few of the initiatives this administration will be undertaking to support U.S. policy interests and African development.

All of this will require the support and determination of the American people. I believe all Americans now fully understand that we are not alone on this planet. We are fully aware today of our interdependence with other people whose attitudes toward the United States can have a very direct bearing on our own well-being. We may wish it were not so, but we know it is so. We have shown in recent weeks that we are capable of deliberateness and forceful moderation, even when unconscionably provoked. In recent years, we have found our voice again as advocates of the human rights to which all people aspire.

And I believe we have the capacity and boldness to translate these assets into a program that will indeed make a difference to Africa. ☐

Douglas J. Bennet Jr. is the Administrator of the Agency for International Development. This article is adapted from an address delivered in December before a group of Detroit businessmen.

Top: The sea feeds the Somalian people and offers the nation a source of income as well. Above: The Masai and other tribes can provide information essential to planning effective development projects in Africa. Right: Portrait of a young Ugandan herdsman.

IN PRINT

Recognizing the 'Invisible' Woman

A review by Jane S. Jacquette

The World Bank's latest publication on women, "Recognizing the 'Invisible' Woman in Development: The World Bank's Experience," is the best short introduction to women in development issues currently available.

In addition to its very clear, concise review of the issues on a sector-by-sector basis, the book links the issues and specific projects in which the bank is involved. The book's last section is a list of projects by country and sector, with project descriptions, and dates and amounts of funding. In accordance with bank policy, in each of these projects, the women in development element is integrated into a much larger effort, and women are among the beneficiaries identified. Often the women in development component is included to ensure that the project actually reaches women who may be overlooked or even excluded by conventional project design and implementation.

The book's introduction begins with the fact that any policy designed to meet the needs of the poor will have to be directed toward women who make up a "disproportionate number" of the poor. It further emphasizes the differential impact of development—and development interventions—on men and women: "Economic change often has altered the traditional division of labor at women's expense, pushing them out of their traditional economic activities and widening the gap between their labor and that of men." It recognizes the relationship between women's roles and fertility, but, again, emphasizes women's productivity in the economic sphere as a priority issue, if not as an end in itself.

On women and education, the bank study notes the effects of illiteracy on women's productivity, health and participation. Experience with education projects has shown that it is not the education system itself but attitudes toward women's education that perpetuates low school attendance among females. It argues for projects that pay attention to school location, changed curriculum, and the importance of formal education for girls.

To facilitate project planning for women, the adviser on women in development at the bank has developed a set of guidelines for early project review:

- How can projects respond to women's needs and make use of their abilities?
- Can opportunities for women to participate and share in the benefits be found?
- What is the current socio-economic role of females in each project area and what implications might that role have for the design of the project?
- Might a project harm women? How can that be prevented?

Given the current efforts within AID to identify project guidelines that can encourage women in development planning, the bank's guidelines are useful. Yet they could be stronger. It is not just the need to respond to "needs" that makes the inclusion of women important, but the fact that women are often involved in production and are already active in the "development process," and that their lack of access to credit and technology, education and even land ownership makes it necessary for them to work harder for less.

Similarly, it is not only a question of finding opportunities for women to participate in development, but of recognizing that the conventional institutions and processes of development actually exclude them. Evidence here ranges from the poor representation of women in community development structures—modern participatory institutions—which may give women less influence over decision-making than they had under more traditional decision-making processes—to the well-known cases of women who are not taught to use tractors or who are driven from the marketplace by a more "rationalized" market system. As the bank guidelines rightly emphasize, even when projects are not directed toward women, they may have a detrimental effect on them, as when an urban or rural resettlement program removes women from their traditional network of friends and relatives and thus from a mutual support group, or when a new hybrid rice variety is impossible to harvest with the traditional knives that women use, and the job of harvesting shifts to men who have the proper tools. Taking account of the "invisible" woman is not simply an equity issue or even one of marginal productivity. Women's exclusion can also lead to the failure of projects, particularly when women are asked to do work—such as maintaining trees—but do not share in the benefits—selling the firewood.

Finally, "Recognizing the Invisible Woman in Development" is not the list of "projects that work" for which everyone is clamoring. The bank, like AID, is not yet far enough down the road to say "this works" and "this does not." It should come as no surprise to project designers or policy planners that we may never have a "projects that work" handbook. Adaptations to local conditions and the constantly improving "state of the art" makes that handbook unlikely and even undesirable.

"Recognizing the Invisible Woman in Development" does illustrate the need to make the woman statistically visible, and points the way toward achieving that goal. ☐

Jane S. Jacquette is a social science analyst in AID's Office of Women in Development.

Full pots... and malnutrition

In Ghana, as in many developing countries, people eat heartily, but not well.

by Ellen M. Burkhardt

Afi, a farmer's wife in a small village in Ghana, awakens at dawn each day to bake bread to sell at the local market. Today her husband will sleep late because he has finished harvesting his corn. He will spend the day in town drinking palm wine with his friends. The younger of Afi's seven children will go to school; the older boys, to work; and the teenage girls—since they are not learning a trade or continuing in school as some girls are —will stay home to help with the chores.

This routine reflects the lives of many if not most families in this small west African country.

With little wealth (per capita income is about $400 a year, and the general economy is staggering under an inflation rate above 60%), most families channel what income they have into buying the food they cannot grow. A homemaker's day revolves around meals, and over the centuries these meals have become respected times for the family to gather. A person who does not take part in a meal is a cause for concern.

Yet almost paradoxically, poor nutrition is common in Ghana. Some of the leading diseases like kwashiorkor (causing edema, potbelly, changes in skin pigmentation and loss of hair) and conditions like marasmus (loss of weight and strength) can be traced to poor diet.

Few Ghanaian people understand the complexities of nutrition and its relation to good health. Instead they lay the blame for their children's agonies on evil spirits or bad deeds—which also, they believe, bring on goiter, spontaneous abortions, stillbirths, apathy, weakness, stunted growth, and infections.

Their meals rarely vary. Like Afi, most mothers serve foods derived from the corn their husbands grow. Typically breakfast is a plain sour porridge made from fermented corn dough; lunch, balls of fermented, cooked corn dough with freshly ground hot peppers and perhaps a small piece of fish; dinner, "banku," another kind of cooked corn dough, and an oily stew. Between-meal snacks are fresh fruit in season, peanuts, fried yams and corn or cassava "dough balls."

With money from her bread sales, Afi buys the ingredients for the evening meal, the largest of the day: oil, tomatoes, onions, red peppers, ginger, a small fish for stew. She may substitute okra for the oil in the stew, but she rarely thinks to buy and add to her stew any of the abundant green kontumerie leaves or "yellow garden eggs" (a variety of eggplant). If she has any money left over—not likely with the current inflation rate—she may buy sugar for the next day's porridge, cocoa drink, candy for the children or tea and milk for guests.

By custom, at mealtime the father is served first. He eats until satisfied, usually taking the most nutritious parts of the meal—like the meat or fish—and leaving the starchy parts for the rest of the family. Guests and older children, especially boys, are next.

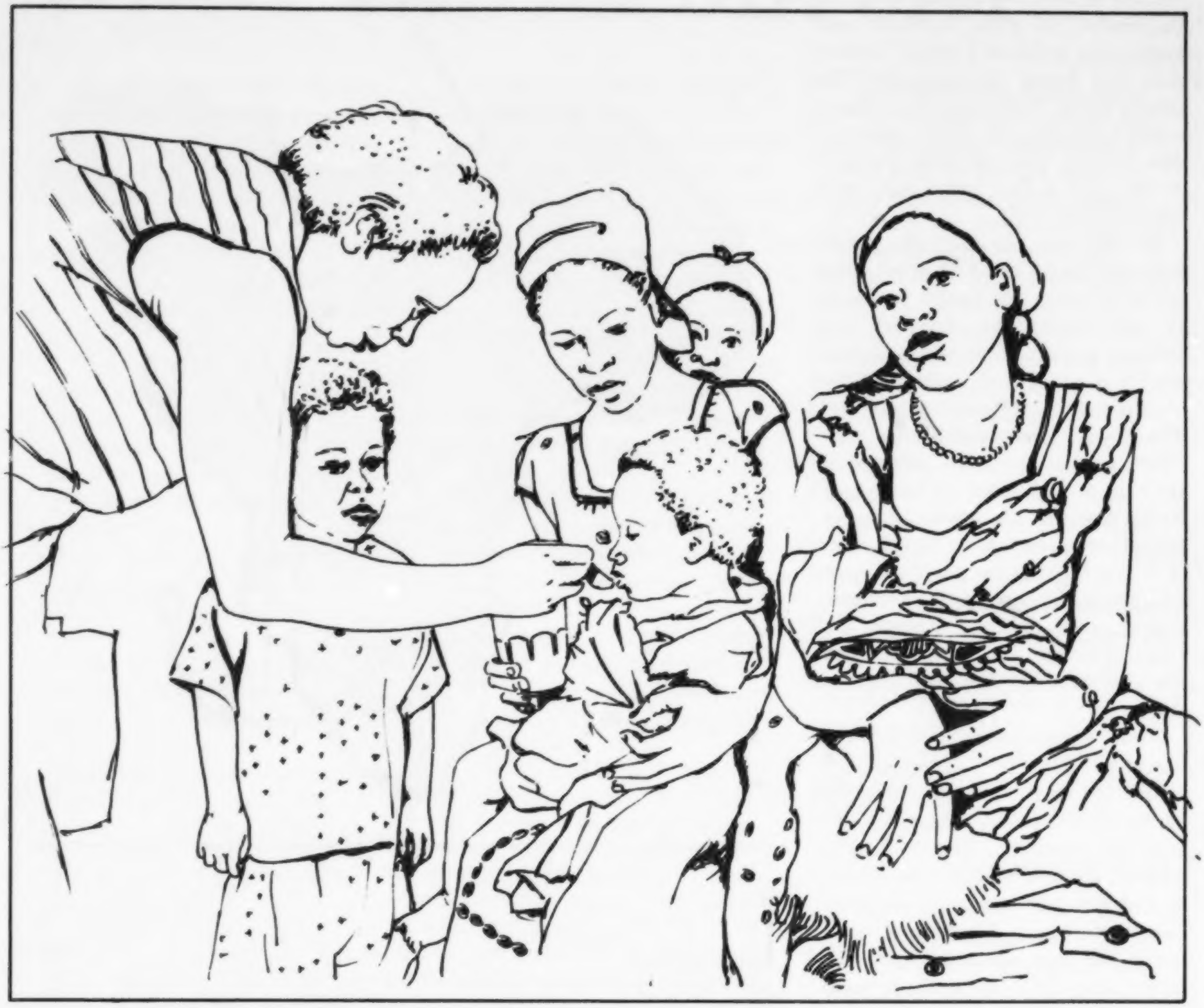
In her village Afi is considered a good housewife: She has given birth to many children, losing only two as infants. And she is a good cook —in fact she is known for her rich, tasty stews, and her "banku" is always the right consistency and quality. She provides three, filling meals a day for her family and they all go to bed with full stomachs.

But her youngest children have distended bellies. Frequently they suffer constipation, alternated with loose stools. The baby has recurring diarrhea and all the children have big, ugly infections on their legs. If anyone were to suggest to Afi that these discomforts were anything more than the everyday things one must learn to live with—and even worse, suggest that the meals she prepares are the cause—she would be insulted. Like most other mothers, Afi believes she is doing right by her family. Her choices of food are dictated by customs deeply ingrained.

The outlook for Afi's children and others to come is not without hope.

Although she can't afford to buy any more meat or fish than she already does (a chicken averages about $12; fish, $5 a pound), she could improve the family's diet by buying a larger variety of grains, beans and vegetables. By substituting less expensive but more nutritious peanuts, beans or fish for the expensive oil and onions, she could bolster both her budget and her family meals.

Afi will not abandon the traditions of her ancestors easily.



Change will be slow, over time, the result of education and new attitudes.

Already there is some change, largely as the outcome of maternal and child health care programs offered by Peace Corps volunteers and voluntary groups. These programs contain strong elements of nutrition education. The Ministry of Health in Ghana recently formulated a plan to increase health care and treatment at the village level. That plan is expected to include nutrition education, since good nutrition is recognized as good preventive medicine. But more emphasis is needed.

The United States is supporting the Ghanaian government's efforts to improve the lives of their people with an economic assistance program aimed at increasing agricultural productivity for small farmers and by developing rural services. The commitment in these areas amounts to $7 million for fiscal 1980. In addition approximately 110 Peace Corps volunteers are already active in Ghana, working in nutrition education as well as in secondary school education, health care and agriculture. Food aid under the Food for Peace Program totals $17.5 million. Most of this food is sold in Ghana, and the proceeds used for economic development projects—in agriculture, for example. The rest is used by private voluntary organizations in feeding programs at schools and in maternal and child health programs.

In the Mampong Valley, village women are learning about better ways to prepare food, prevent malnutrition in their children and generally improve their family's diet, at health programs run at local clinics.

Outreach workers later visit the women in their homes, stressing the importance of good nutrition and suggesting ways to improve sanitation and home management. The Ghana Rural Reconstruction Movement, a private voluntary organization, started this and other projects in the area a few years ago, with support from AID.

In addition, the Catholic Relief Services under an AID grant, runs maternal and child health programs in which nutrition education and follow-up with families are considered top priority. Roughly 176,000 children and mothers are enrolled. The Food Research Institute is another part of Ghana's attempt to provide enough food for its people. Researchers at the center in Accra, which receives some funds from AID, are looking for practical ways to improve food production, processing, preservation, storage and transportation. All of these efforts are encouraging. But more must be done.

Better eating habits probably will catch on. Especially if people can relate the new ways to traditional ideas. For instance, Ghanaians admire an energetic, healthy-looking person, while someone who is sickly and weak-looking may be ostracized. Moreover, Ghanaians, especially the less-educated, generally have great faith in modern medicine, as if pills and injections had a "magic" quality. If people could come to see the positive effects of improved nutrition for themselves and their children, they might develop a faith in proper nutrition akin to their strong faith in medicine. They might discover that foods contain "magic" qualities, released when properly cooked and combined with other foods.

Ellen M. Burkhardt is an environmental scientist with the U.S. Environmental Protection Agency. Her article is based on her experience as a Peace Corps volunteer in Ghana from 1977 to 1979.

Ghana, the first black African nation to gain independence after World War II, faces serious economic problems. Income in rural areas, where most of the 11 million people live, is lower than in urban centers. The rural population has fewer services, in health and education, for example.

Agricultural exports—chiefly cocoa—provide 70% of Ghana's earnings and more than half the government revenues. But cocoa production is at the lowest point in 20 years—mainly because of mismanagement and corruption in the industry—and other countries have captured large shares of the market. Agricultural production has not kept up with population growth: Ghana must import 20% of its food. Dependence on imported food and manufactures has caused balance of payments problems. Shortages of food and consumer goods have been chronic for several years.

Ghana, which imports 80% of its oil from Nigeria, has also suffered from an escalating fuel bill.

In spite of this dismal picture, Ghana has made gains. The soaring inflation rate—up to 120% in recent years—has been reduced to 60% through government actions. Currency has been devalued, import controls tightened, and tight monetary and credit policies adopted. The country receives approximately $120 million annually in assistance for economic development programs—mainly for agriculture, health and road construction—from several countries and international organizations.

WHAT THE MEDIA SAY . . .

The Iranian crisis underlies the painful and important fact that the United States has yet to work out a mutually satisfactory relationship with the countries which are usually lumped together under the label of "the Third World."

—Joseph C. Harsch,
Christian Science Monitor

The United States provided $27 million last year to help victims of disasters that claimed 23,000 lives and affected 11 million people in 33 countries, the Agency for International Development has reported. . . .

AID . . . also announced a $140 million program to provide some 550,000 metric tons of wheat and other commodities to help the African nation of Sudan meet serious food shortages.

—Washington Star

Iran itself is a sharp reminder of how little military weapons count when people's aspirations for a better society appear to them threatened. If there is a lesson to be learned from that experience, it is surely that the U.S. stands most to gain—morally and politically—by addressing above all the social and economic rather than military needs of the developing world.

—Christian Science Monitor

We need a new food-aid policy, guided by two simple principles: First, food aid should be channeled through multilateral institutions . . . ; second, food aid should encourage, not discourage, local food self-reliance.

—Ron Freund,
Los Angeles Times

Wracked with debt and saddled with nearly one billion people living below the poverty line, Third World nations have no choice but to view foreign aid, debt relief and trade concessions as their lifeline to the 1980s. Wish them luck.

Judging from the warnings of some political leaders and the economic ills besetting the advanced industrial countries, levels of development assistance provided by most donors are likely to fall below even those of the early 1970s. . . .

Curiously, the only group of aid donors that upped their outlays were the Communist countries, which have defended their almost indifferent aid performance in the past by blaming Third World ills solely on Western imperialism.

—William Hellert,
The Interdependent

The United States remains a superpower and doubtless will be for the rest of the century, but it is no longer *the* superpower and the world's divisions are no longer neatly geometrical—bipolar, trilateral, pentagonal.

—Flora Lewis,
New York Times

The amount of American aid committed to alleviate the current tragedy of Cambodian refugees is many times greater than that even being considered by our government for all of Africa. Possibly the plight of the desperate dying children of Somalia does not touch the complex guilt feelings of America regarding Cambodia and Vietnam, but the Somali child is dying just as rapidly and with the same permanence.

—Kevin M. Cahill,
New York Daily News

A simple but highly innovative "Food for Rats" program is making encouraging headway as a solution to the serious problem many less developed countries have with rats consuming substantial amounts of precious grain. A measure of the program's success is a Bangladesh newspaper report that up to 600,000 rats have been killed in one area in recent months. Now this is also an example of getting two birds with one stone. . . . The program performs a vitally needed public service while at the same time teaching a populace the concept of the value of the incentive motive in economic matters.

—Newport News Press,
Newport News, Va.

Because of the Afghan crisis, the Carter Administration has made a policy decision to offer future military and economic cooperation to Iran if the American hostages there are released unharmed.

—New York Times

The report of the President's Commission on World Hunger is a mix of chilling facts, pious sentiments and questionable strategies. One person out of eight around the globe suffers from malnutrition. What's more, between population growth, war and political breakdowns, world hunger has been worsening rather than diminishing in recent years. Such are the chilling facts. Humane sentiments demand that something be done and American pre-eminence as the biggest producer, consumer and trader of food argues that it is up to the United States to take the lead in doing it.

—Washington Star

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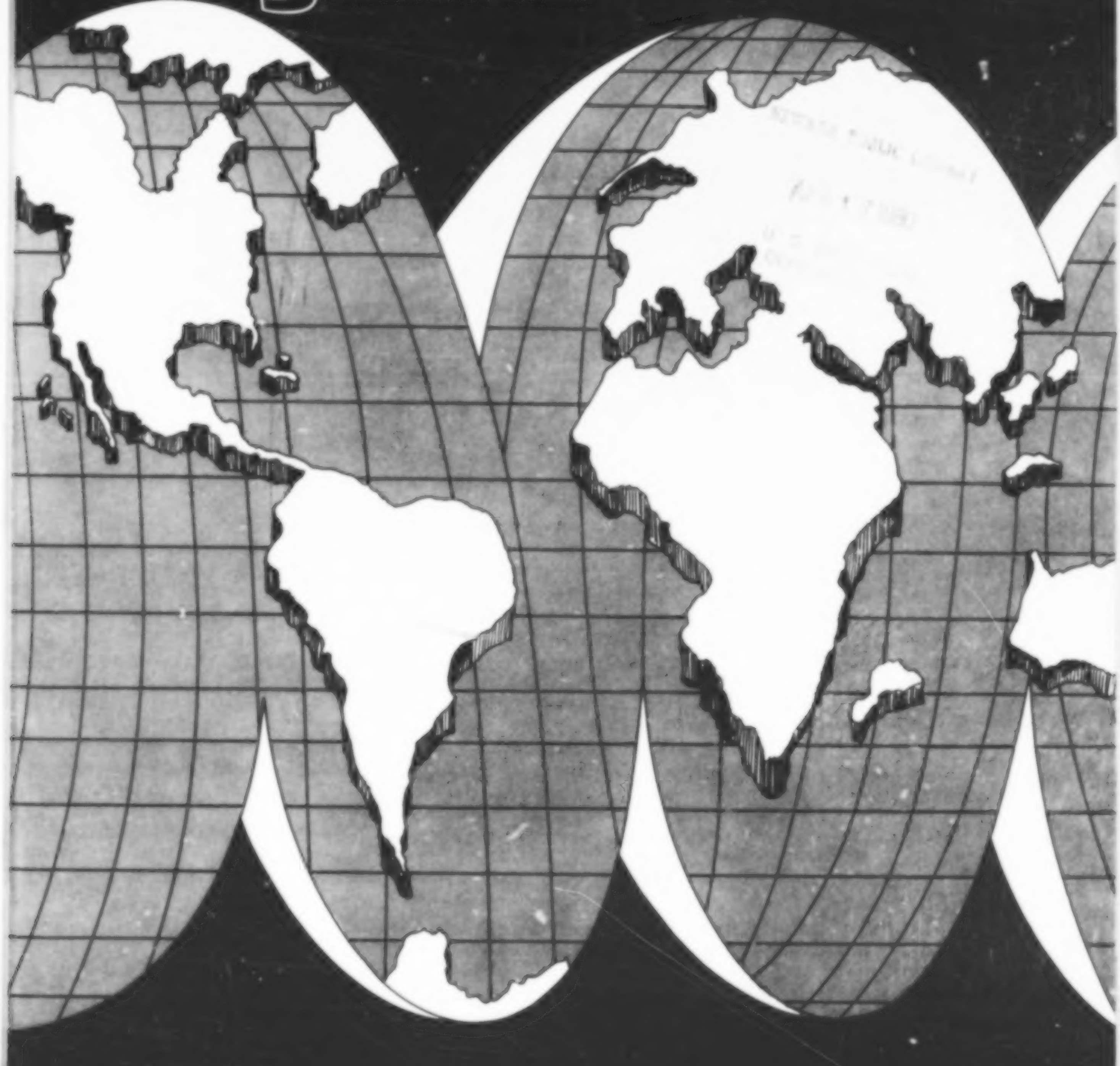

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THE WORLD OF AID

DEVELOPMENT UPDATE

Mind boggling: Eight years ago North Yemen, one of the world's poorest countries, had a per capita income of $80 a year. Now it's more than $400, edging the country close to "middle income" status. The cause? Close to a million North Yemenis (almost a third of the country's males) work abroad, primarily as menial laborers in the booming Arab oil states. Last year they sent home about $1.5 billion —46% of the country's GNP. Yemen is considered an extreme example of a phenomenon that is sweeping the Middle East—in fact, much of the world. Huge numbers of people are moving from region to region in search of work, many of them drawn to the oil companies by booming development.

The bugs won the first round, but the scientists are gaining on them. The UN Food and Agriculture Organization says 364 species of insects and mites have developed resistance to pesticides. Among the crops they threaten are rice and cotton—two of the world's principal food and money crops. Some of the scientists, as well as the United Nations Environment Programs, argue for the abandonment of total reliance on chemical pesticides in favor of "integrated pest mangement."

Death of a child: What does it mean to a Third World family? Among other things, it means a larger family. The authors of a study in Jamaica, George W. Roberts and Sonja A. Sinclair say: "A study of patterns of reproduction in Jamaica revealed that the average family size of women who have suffered the loss of one or more children is 6.17, which is 2.6-fold the size of families which have escaped such loss. . . ."

Whither rising aspirations? "Our economies are no longer able to match the rising aspirations of our people," said Lester B. Bird, deputy prime minister of Antigua, recently. "Our people are becoming eager for a change. That eagerness . . . now manifests itself in social and political upheaval. . . . Bastions of democracy are not constructed on a foundation of poverty."

Don't think we can shut ourselves off from change. . . "There seems to be an historic drift toward global community, even of the most turbulent sort," writes economist Robert J. Samuelson in the *Washington Post.* "Even without our critical dependence on energy imports . . . many powerful constituencies have a sizeable stake in internationalism. About one-third of America's grain goes abroad, and about half of our production of commercial jets. At last count, U.S. banks had $125 billion outstanding in foreign loans. In 1977, 8.3 million Americans journeyed overseas and 6.5 million foreigners came here."

The Third World is heading toward a massive food shortage that may result in disaster within the next 20 years, according to a report by the UN Food and Agriculture Organization. S. T. Keel, senior vice president of the International Minerals and Chemical Corp. adds: "Food production must be increased 43% in the next two decades just to maintain current world nutrition levels which are clearly substandard."

But growing recognition of the enormity of the food problem, plus American inventiveness give hope that the disaster scenario can be rewritten. According to *Dun's Review,* the day may be upon us when some crops can be grown cheaply and plentifully in controlled indoor environments. "Prospects for indoor agriculture will take a dramatic leap forward when General Mills Co., after five years of closely guarded research and millions of dollars in investment, switches on a remarkable new 'vegetable factory' (opening in February) near Chicago."

Meanwhile, in some parts of the Philippines, farmers are using new, fast-maturing high-yield rice varieties with great success. They have increased yields from approximately 1,672 pounds per acre for a single crop to up to 9,000 pounds for two crops. Traditionally these farmers have planted their rice in seedling beds when the rains came. Now they plant seeds directly into the soil just before the rains as we do for wheat or oats. The new variety matures in 100 days, rather than the 150-180 required by the old variety.

agenda
agency for international development

Cover: The U.S. foreign aid program, through the Agency for International Development and other institutions, helps Third World countries across the globe build the skills, knowledge and resources needed to feed their people and forge economic, social and political systems. The United States is one of over 40 countries giving foreign assistance.

Photo credits: Carl Purcell/AID, pp. 2, 4, 9, 15; Ken Hyman, p. 19; International Rescue Committee, p. 18; Jerry Rosenthal/AID, pp. 8, 14; Kay Chernush/AID, pp. 2, 5, 12, 22; World Bank, pp. 7, 18; United Press International, p. 20. All others, AID.

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Douglas J. Bennet Jr., Administrator
James W. McCulla, Director
Office of Public Affairs

Press and Publications Division,
Office of Public Affairs
Agency for International Development
Washington, DC 20523
(202) 632-8351

Edward R. Caplan, Division Chief
Lee Mullane, Editor

THE HOPE OF DEVELOPMENT

A statement by Douglas J. Bennet Jr.

Progress may be a slow process, but it's happening.

The responsibility of the Agency for International Development is to help developing nations meet the basic human needs of poor people. To Americans who have supported U.S. assistance for three decades, this must sometimes seem an endless task—even hopeless. It is not.

Development is happening. The ASEAN (Association of South East Asian Nations) nations of Southeast Asia have achieved a level of development few would have predicted a decade ago. India is now surviving a drought on the strength of its own home-grown food reserves. Population growth rates have dropped dramatically in Thailand, Indonesia and Mexico over the last five years. More than 30 countries are establishing primary health care systems that were virtually non-existent in the past. Third World nations are increasingly able to borrow in private capital markets for development projects. The United States can proudly take credit for a leading role in fostering these changes.

Yet we also are working in a world in which escalating oil prices and weakness in industrial economies threaten development aspirations. It is a world in which military force is still used and terrorism and fanaticism divert people from the humane objective of helping the world's poor majority.

Although real economic and social development is a long-term process, the environment in which AID operates is not static. It is fast-changing and turbulent. Villagers tilling the soil in the manner of their forefathers are very likely today to lay down their tools and move to the city, even to another country, where the chances of survival seem better. They may find work and be able to send money home, which accelerates expectations among their neighbors. They are still uneducated; their children, whether they stay behind or join them in an urban slum, will still be hurt by disease and hunger. Their expectations and demands will continue to rise faster and faster. And their government will find it harder and harder to create economic policies and political institutions capable of meeting the legitimate needs of its people.

AID is working mainly in the areas of food production, nutrition, family planning, health and education—all components of the U.S. strategy to meet basic human needs. In addition to administering the United States' bilateral development aid, we also administer PL 480 (food aid) and Economic Support Fund assistance which, to the degree possible, we bring to bear on development needs. We rely heavily and increasingly on the Peace Corps, on American private and voluntary organizations, and on other sources of private sector expertise to multiply the impact of our tax-supported assistance programs.

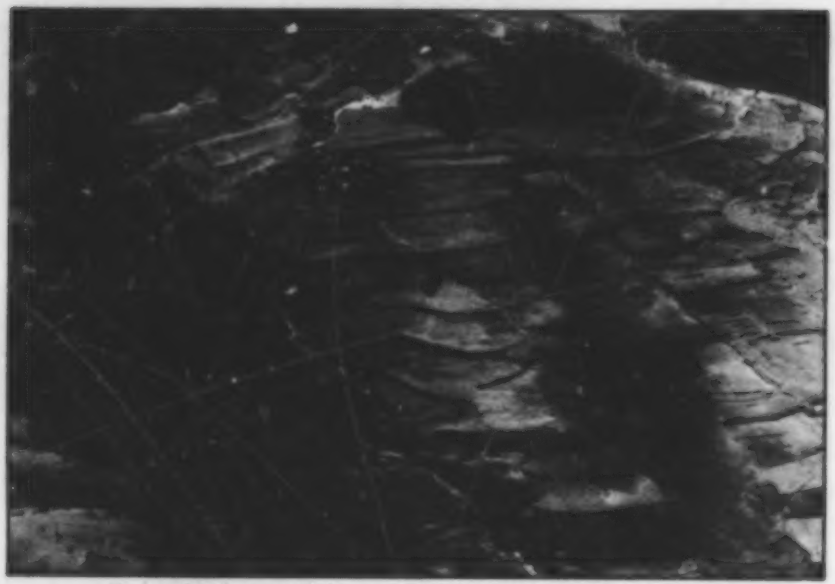
AID missions or representatives in more than 70 countries develop projects in cooperation with host governments and mobilize the necessary expertise to carry them out. Development requires more than the transfer of resources; it requires the application of this kind of knowledge and experience which the United States has built up over decades of commitment to development. . . .

One encouraging reality in many developing countries is their expanding capacity to manage their own development. While oversight of the use of U.S. resources will always be needed, AID is able to rely increasingly on host country nations and institutions to carry out AID assistance programs. By doing so, AID is able to use its own scarce resources more efficiently.

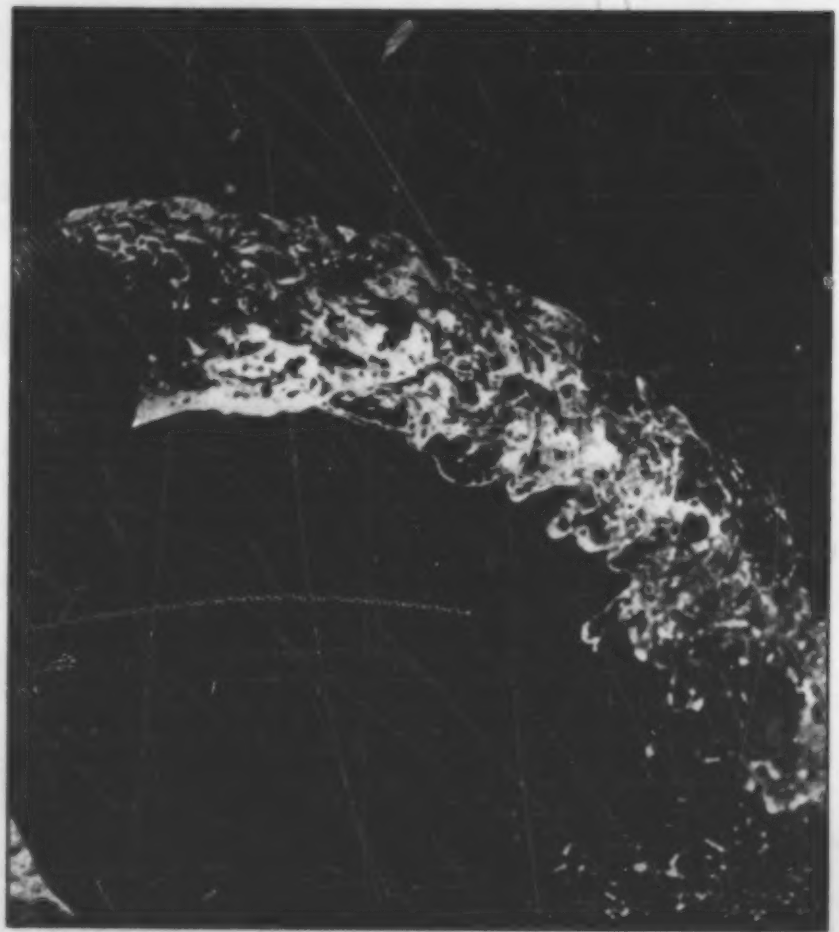
There also is considerably greater development capacity in the international community at large. Where the United States once stood more or less alone as a donor in the early years, there are now a growing number of contributors: other bilateral aid programs, the multilateral banks and U.N. agencies, a variety of new voluntary organizations, experienced contract firms and private financial institutions—all engaged in the development process.

The increase in host country capacity and in the number of donors means that AID can increasingly specialize in areas where U.S. experience and technology can capitalize on our comparative advantage and multiply the effectiveness of other contributions. While AID continues to administer the full range of U.S. bilateral assistance, we specialize in technical and financial assistance aimed at supporting host country programs that attack the problems of poor people and help create social infrastructures that make democracy work. This is where the United States can make a real difference. We rely on the multilateral development banks and, increasingly, on the private banking community to meet many of the Third World's large-scale physical infrastructure and capital requirements, and on the U.N. agencies for certain types of technical assistance best provided by them. . . .

As an organization, AID must be stable enough to sustain long-term development efforts and to ensure proper use of U.S. funds. At the same time it must be limber enough to take risks, to innovate and to respond promptly when development opportunities occur. Congress can help us in this dual effort—by



Proper land use will be essential to development in the '80s.



Growth requires water, but water is dangerously scarce in much of the world.

reaffirming its support for the difficult but challenging basic human needs policy, by avoiding too many narrow program requirements and by being prepared to stand by an Agency which is required to take risks for progress. After drastic post-Vietnam staff cuts and a reorganization designed to concentrate more staff resources in the field, AID is now in a period of healthy consolidation. While we work toward some further reduction in the total staff over the next five years, past and current attrition rates give us latitude to recruit new people into the Agency. . . .

We are attempting to streamline our project development and implementation procedures to be more responsive to host country needs. In the process, we hope to find ways to improve the flow of usable information to Congress. We have initiated a system for project impact evaluation, which will give our field organizations, as well as host governments and other donors, better access to agency-wide experience on what works and what does not.

Most importantly, perhaps, we are working through the International Development Cooperation Agency (IDCA) to achieve coherence and better coordination among all elements of the U.S. assistance effort in order to enhance U.S. development impact in Third World nations.

The fiscal budget request maintains AID's concentration on food, rural development, population, health and education. It includes new attention to renewable energy resources, afforestation and natural resource conservation, all of which are essential to preserving the resource base which will make further development possible. ☐

Douglas J. Bennet Jr. is Administrator of the U.S. Agency for International Development. This is adapted from the Agency's Congressional Presentation for Fiscal 1981.

AFRICA: Far behind, pushing forward

U.S. assistance must serve as a catalyst in troubled years ahead.

A statement by Goler T. Butcher

Not long ago, there were few schools in newly independent Africa. Now, many young people are being educated, and as a result, are contributing to development.

For fiscal 1981 AID is requesting a total of $533.1 million for economic assistance to Africa. This includes $140 million in Economc Support Funds ($90 million for Southern Africa and $50 million for Sudan).

The fiscal 1981 request compares with $219 million in 1977, $329.7 million in 1978, $317.2 million in 1979 and a planned 1980 program of $455.7 million.

In addition, in fiscal 1981 we are planning PL 480 (food aid) programs totaling $205 million compared with $169 million in 1979 and $142 million in 1978. Title III programs (under which the U.S. government enters multi-year agreements to supply food and forgives the debt created) have been started in Sudan and are being developed for Senegal in 1980 and Somalia in 1981.

While AID levels for Africa have been increasing steadily in recent years, inflation both in the United States and Africa, and the addition of new programs, have offset much of the apparent increase in resources. Available development resources are extremely limited.

Africa's development problems are complex and worsening in many cases. However, these problems can be solved. Sub-Saharan Africa has the potential for self-sustaining economic development and for assuming an important economic role in the international community. Its markets and exports may be modest in global terms now. But, in the next 20 years, Africa's ability to help meet a rapidly growing world demand for vital raw materials, oil and food supplies will be critical. And its potential for providing investment opportunities and new markets may be equally so.

Africa's untapped natural wealth

I would like to discuss the importance of Africa's untapped potential:

- With world food shortages projected to reach near 100 million tons by 1995, Africa possesses enough underutilized land to be a net exporter of food. In many areas, only 10% of the arable land is being tilled and major irrigation resources go undeveloped.
- Africa has the capacity to be the world's greatest producer of hydroenergy. Yet, its resources are underdeveloped. Today, 80% of the continent's energy needs are satisfied by burning wood, but cutting wood to fuel fires contributes to the spread of deserts. Over time, combined efforts in reforestation, hydro-power and coal development can reduce the continent's economic vulnerability due to its dependence on firewood. Moreover, the surplus energy Africa is capable of producing from other sources could be released for world consumption.
- In the past, illiteracy and unusually difficult health conditions have limited full utilization of Africa's human resources. Today, the num-

Research may defeat killer diseases.

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Vocational students in Tanzania learn to operate American-made farm machinery.

ber of people who can read and write is growing, and health conditions are improving. In addition, the peoples of Africa have developed great skill in adapting agricultural techniques to local conditions. If this effort is supplemented by outside technology, productivity can be considerably increased.

- There are known mineral resources which have yet to be exploited in sub-Saharan Africa. There also is great promise of new mineral wealth. The United States is already importing strategic minerals such as vanadium, chrome, maganese and uranium, and will become increasingly dependent on regular supplies of African petroleum. The growing interdependence between Africa and the United States is only beginning to be felt.
- In the 1970s, the Third World, particularly Africa, was the fastest growing market for U.S. exports. We now sell more goods to the developing world than we do to Europe and Japan. One out of nine industrial jobs in the United States today is due to exports to the Third World. These trends, mutually beneficial to both Africa and the United States, can grow, but only if Africa can avoid economic stagnation and sustain minimum acceptable levels of progress.

There are, however, serious and alarming problems that, taken together, could severely inhibit Africa's potential for growth.

In fiscal 1981, we will begin more systematically to bring resources from all the development assistance accounts, Economic Support Fund and PL 480 into greater harmony in order to have a greater impact on the five most important problems in Africa:

- The highest priority will be given to reversing sub-Saharan Africa's declining per capita food production. While overall food production has increased, it is not keeping up with the growth in population. AID will work with international groups and other donors to re-evaluate past strategies and propose new directions where appropriate.
- Strategy must be developed to create critically needed jobs for rapidly growing numbers of people. The labor force in Africa is growing by more than 9% a year, yet jobs are increasing by less than 1%.
- We will work to substantially expand and improve health care, family planning, basic agricultural services, safer water, sanitation and rural transportation.
- AID will seek broader methods of putting financial resources to work. We will encourage nonformal and agricultural education, vocational training and professional level training for men and women.
- AID will increase support for energy programs, including afforestation, renewable energy sources and soil conservation. More than half of Africa's land area is or soon will be desert. The problem is far worse in Africa than in any other region.

The need for cooperation

Even with our most efficient concentration on these problems, we are seeking more and more to bring about new forms of cooperation between Africa states. Since 1970, trade between African states has declined from 18% to 12%. At a recent colloquium on trade and investment opportunities in Africa, U.S. companies identified the phenomenon of small national markets in Africa, as a major discouragement to U.S. private investment.

Today, donors and Africans alike increasingly recognize the need for African nations to resolve common problems, exploit common resources, such as river basins, and participate in joint projects that address national priorities.

The United States will increase support to African economic and development cooperation. For instance, in southern Africa the five front line states of Tanzania, Zambia, Botswana, Angola and Mozambique are working on a plan for systematic cooperation, starting in transportation and later moving to agricultural research, food production, livestock diseases and technical training. They have indicated their desire that Swaziland, Lesotho, Malawi and, eventually, independent Zimbabwe and Namibia join in this important effort. These fledgling steps merit the strongest support.

In fiscal 1981, we are proposing new regional programs in transportation and technical education to support the southern African initiatives. These new regional programs also will provide the means to assist a new elected government in Zimbabwe.

We will continue to support similar cooperation in the Lake Kivu area among Economic Community of West African States members and in East Africa.

The slow business of building nations

As I turn to the issue of project evaluation and program impact, I would like to recall the development situation that confronted most African nations at independence.

There were very few institutions of higher learning, virtually no agricultural research institutions working on food crops, extremely limited health care and transportation, or other internal facilities. Disease was widespread, illiteracy pervasive. The departure of colonial

Reforestation may turn the ever-spreading desert back.

technicians shut down services and facilities in many countries; few if any Africans had been prepared for technical positions. These were beginnings not faced in most other developing regions.

In the 1960s, U.S. assistance to Africa was very limited and represented between 3% or 4% of total U.S. aid.

The primary objective of U.S. economic assistance in Africa through the 1960s and early 1970s was to help develop manpower, limited infrastructure and institutional bases for short-term national development and to establish a foundation for long-term economic development. Progress toward objectives is indicated by the following accomplishments:

- AID-financed teams from a dozen U.S. universities cooperated with Nigeria to reshape the Nigerian education system. Teacher training institutions were created or expanded. Comprehensive secondary schools were developed at Ayetoro and Port Harcourt, offering, for the first time ever in Nigeria, vocational and commercial courses. A technical college was developed at Ibadan. Several agriculture facilities were formed, as well as school of veterinary medicine. Considerable effort was devoted to establishing and training the faculty for the University of Nigeria—which now has approximately 7,000 students.

- By 1965, vocational training institutions were established in Togo, Guinea, Zaire, Benin, Gabon, Mali and Niger.

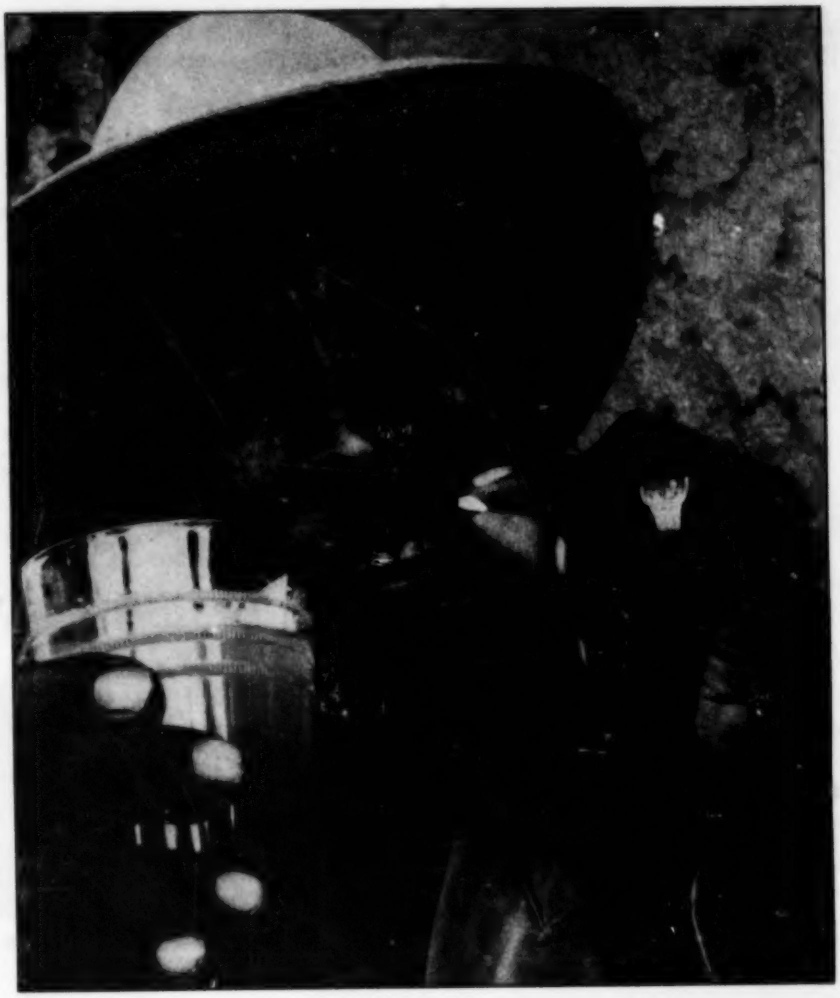
- By the early 1970s, AID had supported the establishment or expansion of the faculties of eight higher education and 26 subprofessional institutions in Africa, including teacher training institutions. In the period 1960-70, AID assisted in building 15,000 classrooms for 800,000 students.

- 100 million people in West and Central Africa have been vaccinated against smallpox. The disease was eliminated from the area. Later, with U.S. assistance, the World Health Organization eliminated smallpox from Ethiopia and Somalia, the last countries in the world to have that disease.

- Twenty million children in West and Central Africa have been vaccinated against measles.

- The Volta Hydroelectric Project and related projects were adding 500,000 kilowatts of electric power by 1970, and were contributing considerably to Ghana's industrial potential.

- Throughout Africa, road systems were extended by 8,500 miles. AID participated with other donors in building the Trans-Cameroon Railway, which has contributed to that country's impressive growth.



This pill may help to wipe out malaria once and for all.

The programs started in the mid-1970s in response to the New Directions mandate, the Sahelian drought and the concern over the southern African states are still too new to measure. So far:

- Assistance to agricultural research has increased with the start, in Africa, of the International Institute for Tropical Agriculture and International Livestock Center for Africa. Applied research in cereal crops—rice, maize (corn), sorghum and millet—has been expanded. Seed multiplication pro-

Refugees from African border conflicts, famine and drought continue to pour into friendly countries by the thousands.

grams are being supported in every region of the continent.

- In Kenya, AID assisted in nearly tripling the number of Agriculture Finance Corp. loans to small farmers from 1971 to 1979—from 10,000 to 30,000. In addition, AID contributed significantly to the successful research leading to the introduction and widespread use by small farmers of Kenyan hybrid maize, which increased yields as much as 25%.
- In Tanzania, AID has helped create the schools that trained enough maternal-child health aides to staff 2,600 rural dispensaries and 184 rural health centers. It is estimated that 70-80% women are attending clinics staffed by these trained aides.
- Overall literacy rates in Africa have risen rapidly.
- Health programs have been steadily lowering infant mortality.

But impact and success should be evaluated within a historical perspective. General policies in the 1960s and even early 1970s held that the former colonial powers were primarily responsible for assisting Africa's development. Moreover, U.S. assistance to Africa was concentrated in only 10 of the now more than 46 countries. AID had virtually no bilateral programs in Francophone and southern Africa until the 1970s.

The U.S. role in Africa

The program for which we are requesting support recognizes the role of AID as a catalytic, though minor donor in Africa. U.S. assistance to Africa in fiscal 1981 is only approximately 8% of all international aid. We believe, however, that our programs fall into the areas of the most critical priorities and where the United States has special capabilities. Our assistance, we hope, can be the linchpin in rendering other donor assistance more effective. In this regard, we are taking part in several new initiatives:

- In December 1979, the Concerted Action for Development in Africa program was announced. CADA will draw together the United States, Canada, the United Kingdom, France, Belgium and Germany and African nations to concentrate resources in major regional programs in the sub-Sahara that might not get underway in a normal bilateral project approach.
- In June 1980, AID will meet with other Development Assistance Committee donors, six OPEC nations and Africans to consider food production, energy, transportation and employment. We will present to the OPEC funding sources a number of projects for co-financing. Transportation rehabilitation—one of the most critical short-term needs—will be one of several multidonor projects undertaken.
- Later this year, we will encourage donors and African states to organize to completely re-evaluate approaches to food production, to see where and how the current trend of declining per capita food production can be reversed. No other economic problem in Africa has higher priority.

In Africa today, we find a continent with the capability of sustaining its social and economic growth—and of contributing to U.S. and global needs. In Africa today, we find a continent with resources and markets the United States and other Western countries need. But this potential is shadowed by the fact that Africa, more than any other continent, will be hurt by food, energy and ecological crises predicted for the world in the next 20 years.

We must, therefore, redouble our efforts to help Africa fully realize its human and economic potential.

Goler T. Butcher is Assistant Administrator for AID's Africa Bureau. This is adapted from her testimony before the House Foreign Affairs Committee, Feb. 7.

Retornados: Rebuilding their

Displaced by African independence, 750,000 people have returned to their mother

text and photos by Kay Chernush

The *retornados* arrive daily at the Caritas loan office in Coimbra with small notebooks that contain their hopes and plans for a new life. Acaco Simoes wants 80,000 escudos ($1,600) to set up shop as a shoemaker. Manuel Alfaiate wants a loan to buy a little cafe.

They try to look confident as they wait their turn for an interview, but their eyes express deep anxiety and bewilderment: They are refugees, who four years ago were wrenched from their homes, their livelihood, their country, by circumstances beyond their control. It is the look that belongs to displaced people everywhere.

Retornados is the name given to the estimated 750,000 refugees who flooded into Portugal in 1975-76 as its African colonial empire was dismantled.

From newly independent Angola, Mozambique, Guinea Bissau and Cape Verde, they arrived in Lisbon en masse, several hundred a day, for almost a year. Most had left all their possessions behind and fled mounting political and social conflict with little more than the clothes on their backs. Within a year, Portugal's population jumped by 6-8%.

The uncertainty which hounded the *retornados* in Portugal was felt throughout the country. The Portuguese people, who in 1974 overthrew a dictatorial regime, were struggling to forge a new democracy. They faced many serious problems—high unemployment, strikes, an unsteady economy. Into this situation the *retornados* came, penniless and in desperate need of shelter and food. The government set up temporary housing wherever there was space—in schools, churches, even at the Ritz, Lisbon's most elegant hotel.

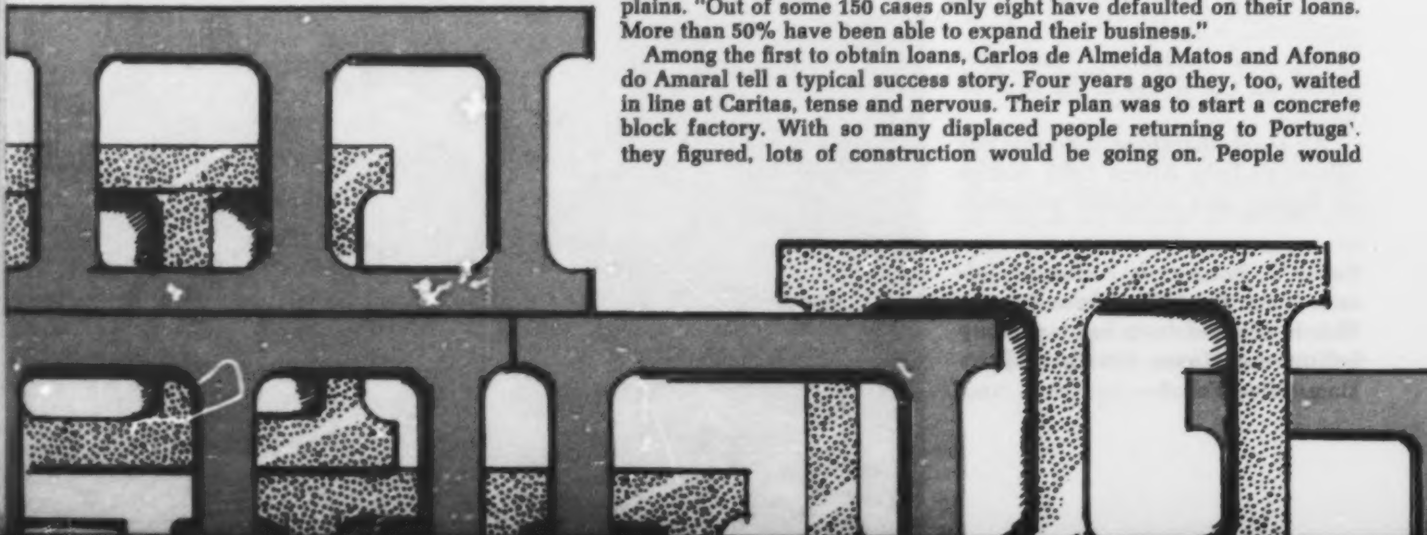
To help ease the economic burden on this fledgling democracy and important NATO ally, the United States helped Portugal airlift people from Angola, and contributed $36 million for refugee relief and resettlement. American assistance also went toward making low-interest loans available to help refugees get back on their feet. Administered by Caritas, as Catholic Relief Services is known in Portugal, the loan program was principally designed to generate employment.

The loan program has been a success. It is now largely self-sustaining; AID no longer contributes funds. But the *retornados* continue to come.

In a sparsely furnished room, Caritas official Mario Marques de Almeida patiently explains to Simoes and Alfaiate the requirements and procedures for obtaining a loan. They can apply for up to $2,000 for each job created, he tells them. Interest is 3%. Repayment is over 25 or 30 months, depending on whether the loan is for a retail business or factory, or a service.

"These people (*retornados*) are very highly motivated," Almeida explains. "Out of some 150 cases only eight have defaulted on their loans. More than 50% have been able to expand their business."

Among the first to obtain loans, Carlos de Almeida Matos and Afonso do Amaral tell a typical success story. Four years ago they, too, waited in line at Caritas, tense and nervous. Their plan was to start a concrete block factory. With so many displaced people returning to Portugal, they figured, lots of construction would be going on. People would



nationality

country.

need new houses, offices, shops and schools, and building materials would be in short supply. Their idea was prophetic.

These days new buildings are going up nearly everywhere, while old ones are being restored or expanded. In some places, the country has the appearance of a vast construction site and it's said that the building boom can in large measure be traced to the *retornados*.

Many of the *retornados*, whites and blacks alike, were born in Africa and had never before set eyes on Portugal. Others, like Matos and Amaral, were returning to their native land. Both Matos and Amaral had gone to Angola as young men in their early 20s to escape the poverty of their region and to improve the prospects for their future. They left the north, where backwardness, isolation and the lack of opportunities doomed them to the same harsh lives as their parents.

Yet, after establishing a new, and better life in Africa, they found themselves uprooted and homeless some 25 years later. They teamed up to manufacture concrete blocks. There was nothing in their experience that had prepared them for running a business, but they learned.

With an initial loan from Caritas of 100,000 escudos ($2,000) and additional help from Matos' brother, the men purchased a few acres in the hills near the university town of Coimbra. "We were very idealistic and full of determination," Matos recalls, looking around the simple one-room block building that serves as an office. "We built this ourselves. This was a hole when we came. We had to do all the earth-moving work, clear out the weeds and brambles and so on."

Today, the efficiently run enterprise turns out 2,500 blocks a day and employs 16 workers, many of them *retornados* themselves. Business is so good, says Amaral, that it is impossible to keep a supply of the blocks on hand. "We sell everything practically before it's dry. If we could produce more, we could sell them," he adds.

Matos and Amaral have expanded "Bruma Fabrica de Blocos," branching out into housing development and construction. And, fulfilling a lifelong dream to be an architect, Amaral now does the designs for the homes they build.

Both men agree that without the Caritas loan they never could have succeeded since no bank would have ever considered them creditworthy. Proud of what they've built, they count themselves lucky and are grateful.

Unemployment is still high among the *retornados* and resentment toward them for what is seen by many Portuguese as preferential treatment simmers just below the surface. But on balance, Portugal has been successful in the difficult task of assimilating this very large group of people, and in heading off what could have been an explosive situation.

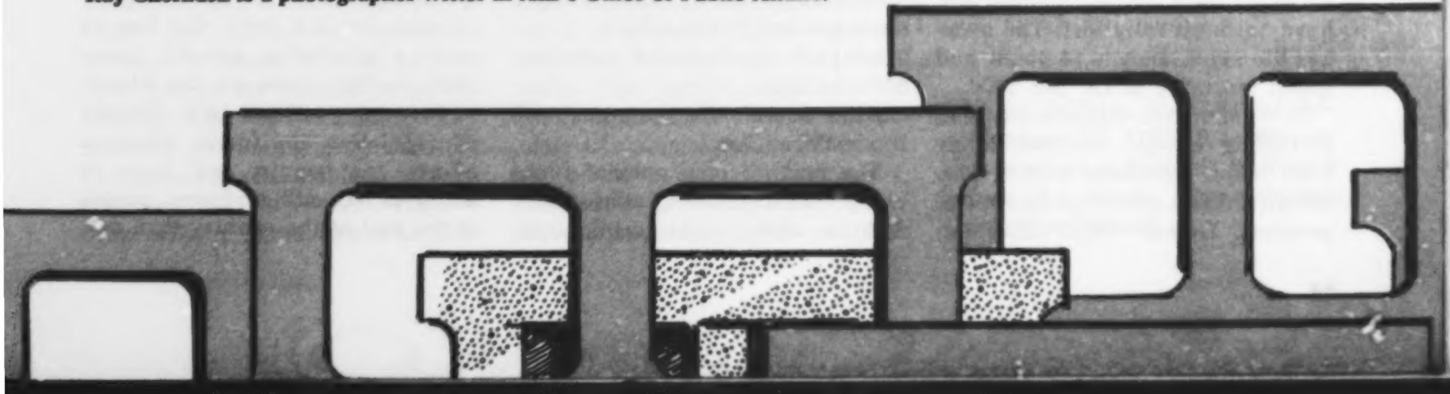
Some see the influx of new blood, brains and energy as a clear plus for the country.

"They have gone back into the poorer areas, like the north, that haven't had any growth in 20 years," says a U.S. development official, "and they're making things happen. They are acting as a driving engine."

This is the last in a series of articles on U.S. assistance to Portugal. Kay Chernush is a photographer-writer in AID's Office of Public Affairs.

Hosing down the finished blocks is essential.

Matos and Amaral check work at a project



ASIA: A growing partnership

Greater trade relationships are developing as Asian nations advance.

A statement by John H. Sullivan

The world's most serious problems—inadequate food production and rapid population growth—are epitomized in Asia. Seventy-five percent of the world's people who suffer acute malnutrition live here. While food production from 1961 to 1978 increased 2.5% a year, that figure needs to reach 4% if a serious shortage by 1990 is to be avoided. If present population trends persist, Asia will have 60% more people—1.6 billion—by the year 2000.

Of the eight AID-assisted countries in Asia, Indonesia and Thailand have registered the most significant growth, in terms of individual income and the national economy, but the basic human needs of their poorest people still have not been fully met. The average life expectancy is 54 years, and infant mortality is 107 per 1000.

Environmental degradation and dwindling energy supplies, along with rising petroleum prices, also threaten Asian economic and social progress. Unless Nepal takes immediate action, for example, experts calculate that in 11 years the country will not have enough forest left to provide shelter and fuel for its people. Between 1962 and 1974, Thailand lost 30% of its forest. Alternative domestic energy sources must be found, and fast.

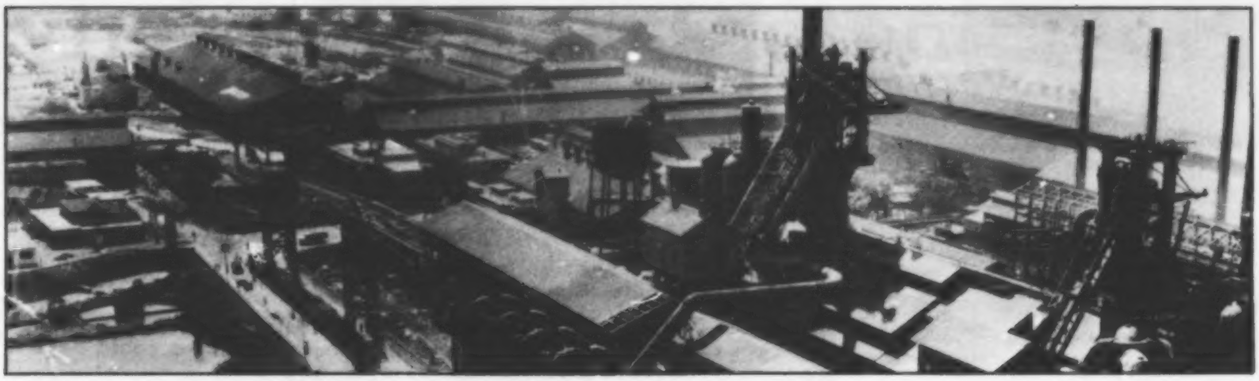
To help close the anticipated food and nutrition gap, cut the area's birth rate, reduce dependence on fossil fuels while protecting natural resources, AID plans the following development assistance for fiscal 1981:

- agriculture, rural development and nutrition, $350 million.
- population planning, $48.9 million.
- health, $69.7 million.
- education and human resources development, $11.4 million.
- selected development activities, $18.3 million.

Food for Peace programs will total $355 million.

The bulk of development funds will go to Bangladesh, India and Indonesia where rural people comprise about 54% of the world's poor. Allocations to Sri Lanka and Thailand will recognize their good economic growth performance and commitment to human rights. In addition, the Agency will continue its modest program for the newly independent South Pacific states. There, through U.S. private and voluntary organizations, appropriate development of limited resources and population control will be emphasized. AID will cooperate with Association of South East Asian Nations (ASEAN) in jointly designing and carrying out regional technical assistance projects.

AID programs have contributed to Asia's overall progress. In Indonesia, strong collaboration between the Agency and the host country government has been the key to curbing population growth. Since 1975, fertility rates on the islands of Java and Bali fell 15%. Thanks to population and family planning efforts, the country will have as many as 60 million fewer people at the end of the century than ear-



Top left: An Indian man learns to read and write by lamplight. Top right: Exhaustion and despair mark the trail for these young refugees. Above: India in the industrial age.

lier estimated. It translates into fewer mouths to feed but, more important, it affords the government an opportunity to attack other development problems.

In the Philippines, building six new roads contributed to a 29% increase in gross annual household income; a 55% decrease in students' dropout rates; a 92% increase in household medical consultations; and a 212% increase in visits by agriculture extension workers to farms. Thanks to help from AID in the form of irrigation projects, improved technology and domestic marketing programs, the Philippines has been able to achieve foodgrain self-sufficiency. And, a cooperative program begun in 1973 registered $9 million in savings to members in 1978.

AID experience in Taiwan proved that low-cost research projects can generate jobs and income in excess of the investments. One such project that cost $600 led to a mushroom industry which by 1963 employed 75,000 Taiwanese and earned $16 million in exports.

But one of AID's proudest achievements is in South Korea, which is about to graduate from U.S. foreign assistance rolls. In the 1950s, few people believed that South Korea could recover from years of colonial rule and war. It had no industry or infrastructure, and little in the way of natural resources. Its only surplus was people, many of whom were refugees from the north. Not surprisingly, the country was dubbed "hopeless," a "basket case."

Today, nearly 30 years later, the world perceives a far different South Korea, assured of a place among the most developed countries. It is the United States' 12th largest trading partner and is moving up. And it is providing a small amount of foreign assistance of its own, to African countries. ☐

John H. Sullivan is Assistant Administrator for AID's Asia Bureau. This is adapted from his testimony before the House Appropriations Committee, Feb. 28.

LATIN AMERICA: Mounting pressure of poverty

Slow economic growth and accelerating unemployment compound poverty.

A statement by Edward W. Coy

Latin American and Caribbean nations are going through a difficult period of transition, as their governments try to respond to the needs of the poor, especially the rural poor, in the face of slower economic growth and rapidly rising debts. AID's proposed assistance for fiscal 1981 is only a small part of what is required. But, in the long-term, the Agency's support of regional policy and program changes could have a substantial impact on the well-being of the people.

The Latin American and Caribbean region has had a difficult time adjusting to the sharp increase in petroleum prices that began in 1973 and have resulted in high rates of inflation. And, while significant economic progress was achieved in the 1960s, the annual growth rate dropped to 4.6% by 1979.

According to the U.N. Economic Commission for Latin America, at least a third of the overall population and at least half the rural population was living in poverty in 1977.

For the typical rural family, annual income is below $200; one child out of four dies before the age of 2; the others suffer from varying degrees of malnutrition and will receive no more than three years of schooling; and most will not live to the age of 50.

According to experts, during the next 25 years the labor force will double in size—from 98 to 195 million people, and unemployment and underemployment will be as high as 45% by the year 2000. Faster economic growth alone will not provide the jobs all these people will be looking for. Significant changes in employment policy and a reallocation of resources in favor of small farmers, whose rising incomes could create employment in rural enterprises producing a wide range of goods and services, must be made to overcome the serious poverty problems that plague the region. Labor-intensive projects also help reduce unemployment and underemployment.

Other problems—such as environmental degradation and energy

shortages—exist. The region's high rate of population growth has contributed to the overuse and misuse of land and other environmental problems that have reduced agricultural production.

Adverse environmental trends have hit the rural poor especially hard. Many farmers have been forced to abandon their lands, while others face declining yields. The uncontrolled destruction of forests has put upward pressures on the prices of wood and charcoal, the main fuels used by the poor.

The persistence of widespread poverty in Latin America and the Caribbean has led to serious social and political unrest. Recent events in Central America demonstrate the political vulnerability of governments that stress economic growth but neglect equity, while in the Caribbean, a commendable concern with equity combined with policies that stifle growth have left less to be distributed. Finding a balance has been made more difficult by a series of natural disasters that have increased these countries' needs for external assistance.

The region is important to the well-being of the United States, providing such vital resources as bauxite, oil, copper, coffee, sugar and lumber. In turn, Latin American and Caribbean countries constitute the third largest world market for U.S. exports. The United States exports more to Latin America and the Caribbean than to the rest of the developing world combined, and almost as much as to the European Community.

AID is helping Latin America and the Caribbean develop the policies, institutions and technical capacities that will enable them to meet the basic needs of their people; to design effective programs in environmental preservation, natural resource conservation, alternative energy development and science and technical transfer; and to promote regional cooperation.

Nearly two-thirds of the $303.7 million budget will be in the form of loans. In addition, $155.1 million is proposed for Food for Peace programs and $100 million for housing programs.

AID's development assistance is broken down into:

- agriculture, rural development and nutrition, $153.1 million.
- population planning, $6.5 million.
- health, $17.8 million.
- education and human resources development, $49.8 million.
- selected development activities, $48.5 million.

Recognizing there is no single solution to the problem of low productivity and low incomes in rural areas, AID concentrates on interrelated agricultural issues, ranging from inequitable land tenure patterns to government-pricing policies, and cooperates with countries and organizations to improve planning, management and administration.

At the community level, cooperatives and other groups are encouraged to support agricultural research and extension activities as well as small farmer credit programs that give the rural poor the chance to help themselves.

New mothers in Guatemala learn child care at a family health center.

In Guyana, for example, an AID-funded rice modernization project helped boost participating small farmer incomes by 40%. In Colombia, a road construction project provided small farmers a way to get their products to market, giving them the economic incentive to grow more crops.

While short-term results are encouraging, some long-term questions remain. Sustained project success will be determined by how the Colombians maintain the roads, protect against environmental degradation and duplicate the effort.

In the area of population, the Agency is responding to government concern about high population growth rates and to the desire of individual couples for control over the size of families through bilateral programs and centrally-funded intermediary programs. In the population and family planning area, for example, the Agency helped lower birth rates in Colombia from 41 to 29 per 1000, and in Jamaica, from 40 to 27 per 1000 in 10 years. In the long run, those figures translate into better lives for the poor.

To improve health and nutrition conditions at a price the poor can afford, AID is helping national governments improve institutional development emphasizing preventive medicine, community education and integrated health, population and nutrition delivery systems using local paramedical personnel. Provisions for safe water and improved sanitation facilities are also being made.

In the Domnican Republic, an AID-assisted pilot inoculation project has been taken over by the government and expanded throughout the country. Women have been trained as paramedical and nutrition instructors, giving them the chance to participate in the development process and to raise their social status.

AID helps Latin American and Caribbean countries improve their education and human resources base. Schools need to be built, teachers trained and materials developed. Non-formal education, adult education and basic skills training, using radio and paraprofessionals, help reach more people.

While continued educational efforts are needed, many Latin American countries—with AID support—have achieved impressive school enrollment increases. Regional enrollment rates between 1960 and 1977 for primary school-age children went up by 123% and for secondary school-age children, by 397%. In nonformal education, an AID-supported radio education program in Guatemala helped raise participating small farmers' profits by more than 70%.

Programs to develop alternative energy sources will help the region tackle persistent energy problems. Meeting the poor's fuel needs for cooking and heating and for irrigation pumps and other equipment that will increase the productivity of small farms and rural enterprises is a major challenge. To deal with the problem, the regional Fuelwood Alternative Project in Central America and a project to test alternative energy technologies in the Caribbean was started two years ago. The Dominican Republic, Jamaica, Ecuador, Bolivia, Peru and Panama all have ongoing energy programs.

Efforts to reduce environmental deterioration pay particular attention to soil erosion. The solution calls for careful planning as well as community organization and cooperation.

Urban development activities are increasingly important as the population shifts from rural to urban areas. The development of market towns and secondary cities to stem the flow of migrants to crowded metropolitan areas is supported by AID, along with the construction and upgrading of housing, expansion of basic services, strengthening of community organizations and generation of employment.

In carrying out these objectives, countries with good human rights records and a commitment to equitable development are at the top of AID's list since they are most likely to use development assistance to benefit the poor and thus reinforce the thrust of the U.S. program.

In the Latin American and Caribbean region, most AID assistance is provided via loans that are repaid. Latin American and Caribbean countries will make loan repayments of about $207 million or, about two-thirds of AID's proposed budget, in fiscal 1981. Host countries contribute to the cost of the projects.

AID has been placing increased emphasis on the Caribbean. In fiscal 1981, $82.5 million will go toward helping these countries. While regional cooperation helps find solutions to common problems, each country has a unique set of development constraints and solutions that must be tailored to the circumstances on each island.

The AID-supported Caribbean Group for Cooperation in economic Development, created in 1978, has focused donor community attention on the regional and expanded support for development activities of national governments and regional institutions.

To some extent, success has been hampered by worsening economic conditions. Hurricanes David and Frederick caused severe damage in the Dominican Republic and Dominica, causing development setbacks. And, events in Central America, such as the civil war in Nicaragua and the change in government in El Salvador resulting in continuing instability and violence, have underlined the importance of equitable growth. AID is reprogramming fiscal 1980 development aid for El Salvador and Honduras, which is preparing for a return to constitutional government through national elections this month. The Agency has requested a supplemental appropriation from the Economic Support Fund in fiscal 1980, mainly for Nicaragua.

There are some encouraging signs. Peru, Ecuador and Bolivia have had good human rights performances and are moving toward democratic political processes. There also has been a renewal of interest in regional cooperation by the Andean countries of Bolivia, Peru, Ecuador, Colombia and Venezuela. The "Cartagena Mandate" signed by the presidents of these countries last year indicates their understanding of the importance of regional approaches to common development problems, with particular emphasis on the rural poor. ☐

Edward W. Coy is Acting Assistant Administrator for AID's Latin America Bureau. This is adapted from his testimony before the House Subcommittee on Inter-American Affairs, Feb. 12.

NEAR EAST: Progress

Nations struggle as urban pots begin to boil.

A statement by Joseph C. Wheeler

No modern government can leave the needs of its poor unattended for long. Poverty demands attention.

The Near East—encompassing an area from North Africa, through the Middle East, Arabian Peninsula, Turkey, Iran and Afghanistan—contains some of the richest and the poorest people of the world. While income distribution within most of these countries is relatively equitable by worldwide standards, still the poorest 20% of households receive only 5% of total income.

Life expectancy in the region is about 55 to 60 years, except in Yemen, where it is considerably shorter. Infant mortality rates in the region are relatively high. In most countries, some 10% of infants die within their first year; this figure is over 17% in Yemen.

The Muslim nations of the Middle East typically have a high fertility rate. The 18 Muslim countries in the region, with 240 million people, are growing by more than 6 million a year.

The momentum of population growth is not fully understood and therefore is often neglected by leaders and citizens alike. There is more official support for family planning than in the past, but it is uneven. AID-assisted health, family planning and population programs in countries receiving bilateral support are beginning to show promise. But the local and national political commitment remains weak, and health service structures are not yet able to give fertility control the priority it deserves.

The AID-assisted countries in the Near East already are heavily urbanized, and cities continue to grow rapidly. The poor in increasing numbers move from rural to urban areas, causing economic shifts. It is expected that populations will at least double over the next 20 years. The number of city people looking for jobs will probably more than double. This means that a new appreciation of the role that cities play in national development strategies—and AID policies and programs—is needed.

Urbanization consumes resources. Roads, utilities, shelter and energy are required to provide jobs. Urbanization also frequently means converting scarce farm land to

in the face of turmoil

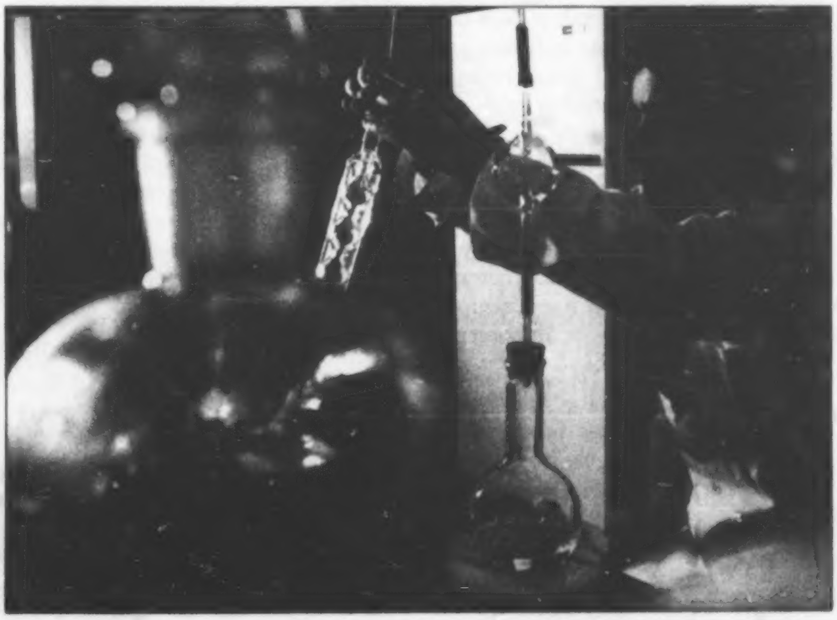
other uses. As incomes in the cities rise, the demand for resources will rise even faster. Urbanization, therefore, can create greater demands for already limited investment funds.

Arab urban areas are not only centers for economic development and change. They also have been and are today the home base for traditional elements. Thus, cities are potential areas for conflict between the secular and non-secular, and between modern and traditional cultural beliefs and social practices. These socio-cultural contrasts are even more likely to explode into conflict when mixed with contrasts between rich and poor, rising unemployment, deteriorating housing, accelerated inflation and services that are not working.

At the same time, urbanization provides promising development opportunities. Near East cities are crucibles of many of the positive social, economic and political changes that governments in the region seek. Cities provide national governments with a major proportion of revenues used for development. Likewise, cities are a major source of capital for the private sector.

Growth, rural or urban, requires adequate water. Water has always been scarce in the Middle East. That scarcity is likely to hinder development in large parts of this area. As population and incomes rise and development takes place, so rises demand for water for personal use, agriculture and industry. Both adequate water quantity and quality are essential if lasting improvements in health are to be achieved. But in many parts of the Middle East, there is little water left.

Of particular concern is the area on both sides of the lower Jordan River. There, Israel, Jordan and the West Bank share the surface water and, in part, the underground water.



Research at Jordan University is helping that nation boost agricultural production.

The Jordan River—the main resource—and its natural reservoir, Lake Tiberias, are being tapped to their limit. And each year, groundwater aquifers (water-bearing areas of the earth) are being pumped almost to the point of depletion and irreversible deterioration. There is little hope of finding additional aquifers. Already inadequate water supplies and sewage systems are creating a major health problem for the Jordanian plateau and for the major cities of Amman and Irbid, where 80% of the Jordanian population lives.

The last, not fully used water source in the area is the Yarmouk River. Jordan plans to control that river by building a storage dam at Maqarin on the border between Jordan and Syria. Within 20 years or so all of that water will be needed for city use on the plateau. Meanwhile, Israel's and the West Bank's need for water is increasing.

Throughout the Middle East water more and more will require hard choices as populations rise and economies develop. Institutions will have to be created or strengthened. These institutions, with the participation and support of the political leadership, will have to mete out resources between agricultural, urban and industrial use, develop rational pricing and conservation policies, look to the recycling of waste water and, at the farthest extreme, to the desalinization of sea or brackish water. Each of the options is costly in money, time and political commitment. Some options need regional cooperation, which in the current political climate are hard to imagine.

Worker migration

There are currently at least 2 million workers from Jordan, North Yemen, Egypt and Syria working in the oil-rich Middle East countries. Their current annual remittances (earnings sent home) are about $5 billion.

North Yemen is the most striking case. At least 40% of the labor force is working abroad. For each of the last four years, worker remittances have been greater than the total cost of imports. Remittances constitute between a third and a half of GNP, which in turn has more than doubled in real terms since 1975. But the levels of education, health services and sanitation remain tragically low.

Egypt is probably the largest supplier of migrant workers. With about 7-8% of the labor force working abroad, unemployment and some underemployment have been substantially reduced. Labor shortages, particularly in construction, appear from time to time. Remittances of nearly $2 billion a year are now almost as great as total foreign exchange earnings from exports, and are much greater than non-oil exports. The effects of remittances on the Jordanian and Syrian economies have been comparable.

There is much current debate on the future trend in remittances. In the last year or two, the increases in migration and remittances have slowed, with even moderate declines in some areas. Some argue this is the beginning of a rapid, substantial decline. However, this seems unlikely.

The consequences of migration are complex. While the loss of skilled and semi-skilled labor by the poor countries has been substantial, there are many compensating benefits. Balance-of-payments problems and unemployment or underemployment have been greatly reduced or, as in Jordan, virtually eliminated. Worker remittances have done what many aid projects aim to do; they have raised the incomes of large numbers of the poor, particularly the rural poor. At the family and community levels, there have been increases in investment, in housing and farm equipment and in such areas as schools and water supply systems. At the national level, although relatively little of the remittances have been taxed directly, governments have received substantial additional

revenues from customs duties on imports made possible by additional foreign exchange.

While large-scale migration has, of course, reduced available labor in many countries, this can be offset to a degree by fuller and more effective use of the remaining work force. This has its benefits in that it focuses attention on critical educational needs and tends to stimulate greater job mobility.

Perhaps the greatest costs are the potential ones that may arise from changes in the social and economic structures of the labor-exporting countries and the external dependencies that they create. While the domestic economies of the labor-exporting countries have in general been growing overall, the emphasis has been on services and systems. while the scope for profitable investments in industry and agriculture is limited by the ready availability of imports.

A quiet Turkish village reflects little of the 20th century. •

Aid from OPEC

In addition to remittances, several of the developing countries are receiving extraordinary foreign assistance from the Arab oil-exporting countries. As in the case of remittances, the largest recipients have been Jordan, Syria, North Yemen and, until recently, Egypt. The flows have also been substantial to Lebanon, Morocco and Tunisia.

OPEC economic assistance to these countries since 1975 has in most years been—on a disbursement basis—on the order of $2.5 billion yearly not including large amounts for financing military equipment and at least some military budget support.

OPEC assistance changed markedly following the Camp David accords and the subsequent "Baghdad agreements." For Egypt, new commitments dropped in 1978 to 25% of the 1977 level, ceasing completely after the Camp David accords. On the other hand, disbursements of OPEC aid to the other countries nearly tripled in 1979, as compared to the 1975-77 average. For Syria, where the three year average had been about $500 million, the estimated level for 1979 is $1.3 billion. With a similar pattern in Jordan, aid flowing from the "Baghdad agreements" is shown at $540 million in the 1979 budget and is estimated at an even higher level in the 1980 budget. There is an even sharper increase for North Yemen, although the reasons are different. The level of $306 million of Arab (OPEC) budget support in 1979 is higher than for the three previous years combined, but this is believed to be to defray the

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extraordinary cost of the border warfare with South Yemen early in the year.

Given the political connotation of this aid it is uncertain and it cannot be depended upon to build a long-term investment program.

The financial flows from both remittances and foreign aid have clearly eased the budgetary problems throughout the area. But this increased purchasing power in the hands of government and private individuals has strained the economic resource base. Economic institutions are often weak and inflexible. Consequently, dollar inflows contribute to high inflation in these countries.

In Egypt, Jordan and Syria, the officially reported yearly rises in the consumer price indexes since 1975 have been in the 10-14% range. In North Yemen, they have averaged 22%. Yet, these figures substantially understate the real rate of price increases, particularly in Egypt and Syria, where price-controlled or subsidized items weigh heavily in the indexes. Some observers believe price increases are twice as high as reports show.

Inflation is not new or unique in developing countries but it can most seriously affect the longer term prospects for economic viability. The traditional approach would be to control purchasing power while encouraging greater market competition and growth. Alternatively, governments can attempt to protect the population through price controls and subsidies. Such policies have been followed in Egypt and Syria. Yet, they create new rigidities in the economy that in the long run may be self-defeating.

Implications for AID policy

Many of the people of this area have only recently emerged from social and economic traditionalism. The financial demands of long years of military conflict and tension have delayed the transition to modern economic and social levels capable of providing high standards of living. Populations now expect that their rapidly rising income will gain for them the high levels of health, education and buying power of developed societies. Governments of the area will be hard-pressed to meet these expectations. Yet, the oil exporting countries constitute a center of growth which tends to speed the development of a widening circle of poorer neighbors.

For AID, some implications:

- Continued priority should be given to improving delivery of essential services to the poor.
- The population problem, as well as high infant mortality rates, must continue to be addressed.
- Economic policy must be given continued attention so the total resources of assisted countries can be used in effective development projects and programs that promote self-sustaining growth.
- Urban development will require more attention. Cost-effective ways must be found for the development of urban infrastructure and urban services that users can finance and maintain.
- Programs of water development, management and conservation must be continued.
- Educational programs must continue. Increased basic literacy and functional training programs will be needed to ease the strains on continued labor migration and permit more people to join the labor force.

In most of the developing countries there is a growing will to address these problems. In some areas substantial progress has been made.

Joseph C. Wheeler is Acting Assistant Administrator for AID's Near East Bureau. This is adapted from his testimony before the House Subcommittee on Europe and the Middle East, International Relations Committee, Jan. 28.

WHAT THE MEDIA SAY...

El Salvador is one of the smallest, poorest, most densely populated nations in the hemisphere. It is far from today's main American concerns. Its unstable and revolutionary neighbors harbor no Soviet divisions. The scores of hostages held there by militants include no American diplomats. But each month, the country moves closer to bloody civil war. Despite distractions elsewhere, the United States should give El Salvador all the help it really needs.

—New York Times

Though still beset by grinding poverty, Haiti is moving ahead with an aggressive industrialization program which may hold the promise of brighter days ahead. . . .

The principal thrust of the Haitian drive for foreign investment, according to Raymond Lafontant Jr., a senior investment director of the National Office for the Promotion of Investment (ONAPI), is to attract assembly industries and agribusiness concerns. . . .

Haiti traditionally has had an agriculture-based economy. This sector continues to dominate, and the government, says ONAPI director general Georges Dabbas, sees significant potential for development of agro-based industries.

But "assembly industries have been the fastest growing subsector in the last decade," using to a large extent imported raw materials from which export products are made, Mr. Dabbas said.

—Journal of Commerce

North in Sudan, that country's near-bankrupt economy is a painful embarrassment to President Gaafar al-Numairy. To the east is Kenya. The Carter administration is pushing the government of President Daniel Arap Moi to be a key participant in the United States' Indian Ocean security strategy—a controversial development in the Third World.

Despite their vast differences, Zambia, the Sudan, and Kenya have three important qualities in common. Though nonaligned, they tend to be pro-West, they are influential, and their current moderate policies contribute a great deal to African stability.

Ironically, though, what once seemed to be encouraging efforts by the Carter administration to develop a comprehensive and realistic policy on Africa have been sidetracked by events in Rhodesia and elsewhere, most notably in Iran and Afghanistan. At best, U.S. policy on Africa now seems to be in limbo.

—Baltimore Sun

NAIROBI—The two superpowers do not challenge each other in Europe where the armies of the Warsaw Pact and the NATO alliance stare down the barrels of each other's guns. No, the challenge—and the bloodshed—takes place in the bushes of Africa, the deserts of the Middle East, the jungles of Southeast Asia and the mountains of Pakistan, Afghanistan and Iran. To quote an old African adage: When two elephants fight, it is the grass that suffers.

—Hilary Ng'weno
Washington Star

Most Americans readily acknowledge the crucial role American foreign aid played in restoring Western Europe's ravaged economy during the aftermath of World War II. Few, however, see it as performing a similarly vital function today; foreign aid has long been one of the easiest and most popular targets of critics of government spending.

Some of the criticism is doubtlessly justified. But the announcement by the U.S. Agency for International Development that it intends to close up its office in South Korea this year should call some quiet attention to one foreign aid program in recent years that has actually worked. For the reason AID is leaving is that it simply isn't needed any more.

—Alabama Journal

Senior diplomats from NATO countries have been urging their governments to extend emergency aid to Turkey, an alliance member, pointing out that the prospect of major turmoil here after Iran and Afghanistan would seriously threaten Western interests in the Middle East. Although the Turkish army is expected to intervene if the politicians fail, it could not solve the country's problems in the long run.

Prime Minister Suleyman Demirel says it will take a $2 billion infusion of emergency aid to prevent a total collapse.

—Washington Post

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Earth, water and air: Casualties of development?

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DEVELOPMENT UPDATE

Fewer children, but how? India's Ministry of Health and Family Welfare recently sampled opinion on population issues among the general public and elite groups. Result: People from all walks of life were practically unanimous on the need to reduce population growth. But opinion differed on the means. The general public preferred voluntary approaches, while elites preferred compulsory approaches, including sterilization.

Tired, poor, wretched? No, writes Kathleen Newland, refuting the stereotype of the expatriate worker who migrates from his or her own country for more profitable work elsewhere. Rather, she writes in the Journal of Commerce, the migrant is probably among the relatively more skilled, educated and enterprising segment of the labor force he or she has left behind.

Save that turtle: Help may be on the way to save the green turtle and other species of sea turtle that are threatened with extinction because of commercial exploitation of the shells, meat and other products. A Nicaraguan official told participants at the World Conference on Sea Turtle Conservation that if money and technological assistance were forthcoming, the government would try to set up a sanctuary and national park for threatened species off Nicaragua's Caribbean coast.

So easy to prevent: Yet 200 million people in 50 countries still suffer from goiter. Found especially in mountainous areas, goiter is caused by a lack of iodine in the diet, a deficiency that leads to enlargement of the thyroid gland, cretinism, or other forms of mental deficiency. The World Health Organization is intensifying a global campaign to eradicate the disease within 10 years.

Credit squeeze for developing countries: Bank officers are beginning to draw grim little circles around those areas of the globe they no longer consider good credit risks, reports Time magazine. "In Black Africa, no nation, with the possible exception of Nigeria, an oil exporter, is still considered a good credit bet. All of the Far East is out—apart from Singapore, New Zealand, Australia, Taiwan and Malaysia. Brazil and Venezuela, another major oil exporter, are alone on the list in South America."

Eight nations contain two-thirds of the Third World's total population: China 1 billion, India 670 million, Indonesia 146 million, Brazil 124 million, Bangladesh 88 million, Pakistan 80 million, Nigeria 70 million and Mexico 68 million.

African proverb: Educate a woman and you educate a nation.

The Soviet Union and the Third World: "The Soviet economic aid program has distinctive features: It is generally given to strategically located border nations and those within the national liberation zone; it is almost always tied to the purchase of Soviet equipment; it is invariably allocated to the state sector; it is almost never dispensed through multilateral institutions; very little is given in the form of outright grants; and extensive credits are offered for financing aid." From a report by the Congressional Research Service, "The Soviet Union and the Third World: A Watershed in Great Power Policy?"

Want a job? A working group of Treasury, Commerce and State Department officials recently examined 1,500 contracts awarded by multinational development banks and found that American companies bid on only 20% of the project opportunities. When the U.S. firms did get involved, however, they won 33% of the awards. For U.S. citizens "that means jobs" with U.S. firms working in development.

Julius Nyerere, president of Tanzania: "Everything we do stresses book learning and underestimates the value to our (Tanzanian) society of traditional knowledge and the wisdom which is often acquired by intelligent men and women as they experience life, even without their being able to read at all."

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Cover: Developing and industrialized countries alike face difficult choices in balancing agricultural, industrial and energy needs against limited natural resources. The United States is helping Third World countries reach that needed balance. See article on page 2.

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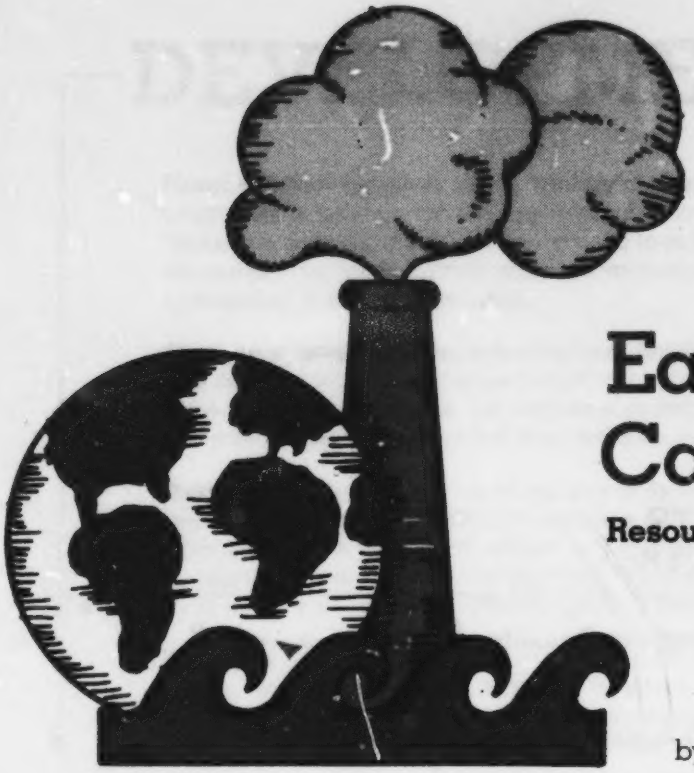
Douglas J. Bennet Jr., Administrator
James W. McCulla, Director
Office of Public Affairs

Press and Publications Division,
Office of Public Affairs
Agency for International Development
Washington, DC 20523
(202) 632-8351

Edward R. Caplan, Division Chief
Lee Mullane, Editor



Earth, water and air Casualties of develo

Resources dwindle, global concern mounts.

by Susan Super

Developing and industrialized countries alike face difficult choices in balancing agricultural, industrial and energy needs against limited natural resources. The results of environmental abuse, such as climatic changes, damage to marine fisheries, air and water pollution, and acid rain (rain mixed with sulphuric acid that has increased because of pollution, especially from burning coal for fuel), do not stop at national borders. Solutions depend on cooperation between governments, international organizations and corporations. But, given political and economic realities, achieving that cooperation is a challenge as great as—or greater than—dealing with the problems.

The "World Conservation Strategy" released in March at simultaneous press conferences in capital cities from Washington to Jakarta gives guidelines for reconciling development with conservation. At the Washington press conference, Russell Train, president of the World Wildlife Fund and former head of the U.S. Environmental Protection Agency, declared that the document should be required reading for world leaders.

Developed under the auspices of the U.N. Environment Program, the strategy statement represents a consensus of hundreds of government agencies, conservation organizations, scientists and development experts around the world. The strategy calls for maintenance of basic life-giving natural systems such as coastal zones, forests and agricultural land; preservation of a variety of crops, wildlife and forests; and use of renewable resources to enhance long-term production.

Major obstacles include the lack of information on complex environmental problems and the shortage of trained personnel. The report also points out that perhaps half the world's population lives in underdeveloped rural areas, where the daily survival decisions of the poor and hungry disrupt their own life-support systems by overgrazing pastures, exhausting soil, stripping land of trees for fuel and, when trees are gone, burning dung or crop residues that otherwise could regenerate soil.

"The Agency for International Development supports the principles the report advocates," says AID Environmental Coordinator Albert Printz. "Many of the ideas

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are already part of AID policies."

AID's regional programs in the last decade show increasing efforts to make environmental considerations part of economic development. Misuse of resources impedes sustained economic development and increases environmental health hazards. The countries AID assists have many common problems: land—desertification, erosion, salinity, waterlogging and declining fertility of soil caused by deforestation and poor land use in agriculture; water quality and supply—silting of lakes and reservoirs, pollution of surface and ground water from agricultural, industrial and domestic wastes; damage to fisheries; air pollution; loss of indigenous plant and animal species; and depletion of mineral and energy resources.

Population growth and rapid expansion of cities strain resources and services, while inadequate water and sewer systems add to pollution and health problems. Poorly planned construction of irrigation systems, housing, dams and roads may aggravate the degradation of water and soil resources, increase health hazards and hurt agricultural production. The United Nations, pointing to the possibility of a worldwide crisis due to rising water demand and pollution, declared the 1980s as the International Decade for Drinking Water and Sanitation.

AID's regional environmental officers report the countries they deal with have shown a marked, if mixed, rise in environmental interest. Besides reviewing projects, the advisers promote environmental interest through regular contact with the field.

Countries frequently confront the undesirable and often unforeseen consequences of programs started years ago. But even the best designed new project could damage the environment if it isn't carried out properly and carefully monitored by skilled people. Agency officers emphasize that informed field personnel play a key role in stimulating environmental interests with host countries and incorporating

these considerations into project planning and design from the start.

AID's fiscal 1980 budget proposal includes some $260 million for environmentally related projects. The funds will be divided among the regions.

Can African resources keep pace with population?

A burgeoning population (growing at close to 3% a year) is placing unprecedented demands on the resources of sub-Sahara Africa.

- Environmentally-related disease (such as malaria and onchocerciasis, or river blindness) and the overuse and mismanagement of renewable natural resources are the most critical and extensive environmental problems in tropical African countries.
- Two-thirds of the region is arid or semiarid. Erratic patterns of rainfall and drought pose serious problems with water supplies. Any pollution at all is critical. Although agricultural and industrial pollution is not yet widespread, it is already severe in some places, such as Gulf of Guinea, and will likely rise as more fertilizers and pesticides are used and as industry develops.

Africa suffers from the world's highest incidence of schistosomiasis (snail fever), two-thirds of all malaria cases and high rates of trypanosomiasis (transmitted by tsetse fly) and onchocerciasis (river blindness). Disease has risen along with human alteration of the environment and changes in lifestyles and agriculture.

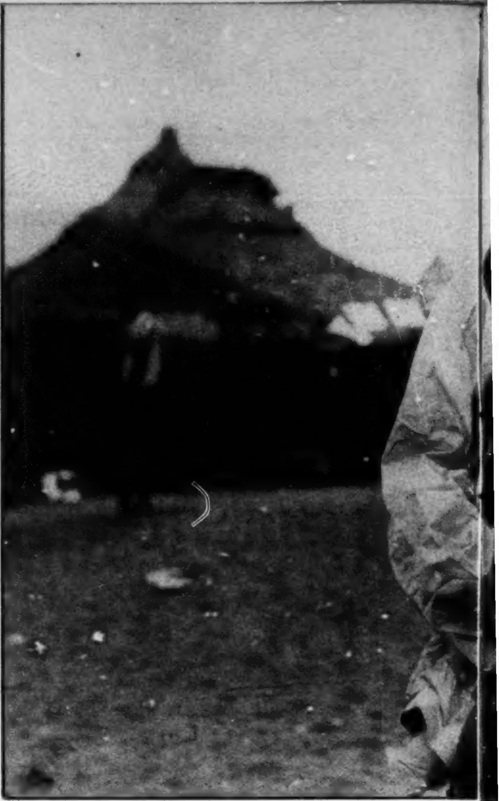
Traditional practices of shifting cultivation allowed long fallow periods to restore soil fertility, but that system has broken down with the need to produce more food. As soil wears out and erosion increases, farmers and herders are forced to move to land less suited to farming. An estimated 250,000 square miles of agricultural and grazing land have been lost to the encroaching Sahara Desert from overcropping, overgrazing and use of unsuitable land in the last 50 years. With per capita food production declining by approximately 1.4% a year, there could be a 23 million ton food grain deficit in sub-Saharan Africa by 1990. But it is possible to stop such trends.

Conservation of land and water resources is essential to the Agency's Africa program, which emphasizes helping the countries increase food production. AID contributed technical assistance and $3.2 million to the $11 million Thaba Bosiu agricultural project, a joint effort with the Lesotho government and other international donors. Improved agricultural practices and conservation training there have paid off in the last few years, as farmers see for themselves that erosion can be checked and that crops are growing well on experimental plots throughout the 300,000-acre site.

A 1978 AID-funded drought symposium in Botswana brought scientists and officials together to analyze drought, ways in which other countries deal with the situation and steps Botswana might take.

Vast resources of land and water, particularly river valleys, remain untapped in Africa. Sustained productivity depends on careful development, however, as large water projects involve risks along with benefits. On the one hand, such projects provide electricity, flood control and water for domestic, agricultural, industrial and recreational use. On the other hand, they may alter land-use patterns, fisheries and the local way of life, damage resources and increase disease.

Although Africa is predominantly rural, it is urbanizing rapidly. Virtually every nation has country-to-city migration, a heavy burden on already inadequate water and sewer systems. More than half of all African cities depend on ground water, which should be managed carefully to avoid shortages, pollution and health problems.



A worker in protective clothing, spraying to rid
frightening sight to a child.

Part of the increased need comes from rapidly growing cities like Lagos, Nigeria, where industry requires more water than was foreseen at the time of the town's establishment. Coastal cities like Lagos and Dakar, Senegal may soon have the additional problem of salt-water intrusion into the aquifer (underground pockets of fresh water).

While African ground water is generally more plentiful outside of the continent's arid regions, water availability can nevertheless be a problem, particularly at the end of the dry season or after a year in which rainfall was insufficient to replenish the ground water. Wells may dry out, and even drilled bore holes may fail to supply water because of the unfavorable geological structure of the aquifers. On the left bank of Lake Kariba, in Southern Rhodesia, for instance, after one development project had been completed, half of the approximately 200 bore holes and wells

a village of malaria-causing mosquitoes, is a

failed to produce the anticipated amount of water and some of them had no water at all.

Urbanization and development projects can destroy natural habitats and threaten the survival of indigenous plants and wildlife, which comprise a valuable, diverse genetic resource. Properly managed, wildlife attracts tourism and foreign exchange, and provides a source of protein for the local people. Although some countries, such as Kenya and Tanzania, have sound conservation policies, poaching and spreading human settlement take a large toll.

Indeed, the very existence of the renowned East African game parks themselves is in jeopardy. As wildlife specialist Norman Myers has written, many parks "could be impoverished by 1990, and few parks could survive at all by the year 2000."

A recent study indicated that a wide range of animals currently provide edible meat in West Africa. Among them are rodents, antelope, duikers and bush bucks. Virtually all species of wildlife—mammals, birds, reptiles and invertebrates—serve as sources of meat. In Ghana, as much as 73% of locally produced meat may come from wild animals, particularly the smaller types, such as grass cutters and giant rats.

While wildlife is not a panacea for global food problems, the potential, especially in the developing countries of Africa, is greater than generally appreciated. Game animals are believed to be far more efficient protein converters than domestic livestock. Moreover, they are more adaptable to the African climate and resistant to local pests, and can go for long periods without water.

African countries are caught in a "double bind," as an Overseas Development Council report described their dependence on fuelwood and oil. Firewood is the main source of energy for domestic heating and cooking, while many of the countries depend on expensive oil imports for more than 75% of their commercial needs. Oil bills cut heavily into export earnings and deprive countries of the money needed to finance development, while rural and urban demands for firewood outstrip supplies. Deforestation leads to soil erosion and reduces water supplies, eventually lowering food production.

At current cutting rates, Senegal may have no trees in 30 years, Ethiopia in 20, Burundi in seven—examples that dramatize the need for replanting of overcut areas, sound conservation techniques and development of alternatives to oil for energy. Hydro, solar, biogas, geothermal or wind are some possibilities. Peat is another.

Burundi's bogs offer rapidly dwindling forests a chance to recover by providing peat as a source of energy at a sixth of the price of charcoal made from wood. Under the direction of a government peat office set up with AID assistance, the new industry also provides badly needed jobs. Peat was discovered in Burundi in the 1960s and the Agency helped get the industry off the ground by funding projects in the 1970s. The governments of Ireland and Denmark and Catholic Relief Services are also working with Burundi on this approach to solving energy and environmental problems.

AID's Africa bureau has been active in funding community forestry programs (small-scale planting programs adapted to community needs for fuel, construction materials, food, fodder and gums), especially in the Sahel.

Bessie Boyd, environmental adviser for the Africa bureau, says the policies of African countries show their increasing awareness and commitment to environmental protection and resource management. The governments are hampered, however, by the lack of clear institutional responsibility, inadequate coordination and information, and shortages of trained people. AID has proposed regional environmental training programs to help close the gap, and is working on a wide range of environmental programs with regional, international and private voluntary organizations and other donors.

Asia: Diverse natural resource problems

Environmental problems in Asia are as diverse as the individual countries' natural resources and levels of development, industrialization and population growth. But common to the entire region are serious problems with water supply and quality:

- Inadequate water and sanitation systems; improper management of water for agriculture; surface and ground water pollution.
- Deterioration of coastal areas: Problems stem from urban, agricultural and industrial wastes; im-

Students in Korea inspect snow-covered bench terracing. Cultivation techniques like this have been successful in Asia.

proper fishing techniques that destroy fish habitats and deplete fish populations, endangering future supplies of a highly important source of protein; drainage of coastal swamps; and sedimentation of estuaries and coastal waters by silt-laden rivers.

- Other major problems include: deforestation; erosion, waterlogging and salinity of soil; rapid urbanization; and increases in the incidence of disease, especially malaria and schistosomiasis, all related to the environmental effects of rapid development.

Several countries have established environmental boards or ministries and passed legislation to deal with these problems. A number of private environmental groups also are active. But the lack of reliable data and trained people severely hinders countries in carrying out programs.

Indonesia, for example, plans to set up 15 environmental study centers at major universities. AID is assisting the center at Bandung Institute of Technology, which will concentrate on human settlements, and the environmental impacts of industrial development. AID advisers will help develop a training program, publications for an environmental clearing house, short-term training and seminars for personnel from the center and the government, and master's degree train-

Toxic waste: U.S. exports open deb

While the U.S. government is working with other countries on programs for wise management of natural resources, some companies are looking to Africa and Latin America for places where they can dispose of toxic industrial wastes.

U.S. firms reportedly have discussed waste facilities with officials in Nigeria, Liberia, Senegal, Sierra Leone, Chile and possibly another West African country. The State Department—as well as other agencies such as the Environmental Protection Agency, Department of Commerce and AID—is understandably concerned, especially about offers to Third World countries without adequate disposal programs or environmental safeguards.

Industry is hard pressed to find U.S. sites. Federal regulations are strict, and state and local authorities are reluctant to allow waste disposal in their jurisdictions. Reprocessing or disposal by neutralization, destruction or long-term storage is difficult and expensive.

Industries are looking to the Third World for a solution, and are offering developing countries incentives: increased foreign revenues and investment, possible recovery of metals from wastes and promises for environmental protection.

"Ultimately, the countries will make their own decisions about what they feel is right for them," says Donald King, director of State's Office of Environment and Health. "But we are concerned that wastes be handled properly, not let loose irresponsibly to ing at a U.S. university for five staff members.

Asia has barely tapped the potential of its rivers for generating power, improving water supplies and increasing food production. Several projects to develop water basins are under way or proposed, however, and concern is increasing over the consequences on downstream areas, fisheries, plants, wildlife and the people who must be resettled from land flooded upstream.

Jane Stanley, AID's environmental adviser for Asia, cites the Accelerated Mahaweli Program in eastern and central Sri Lanka as a good example of making environmental concerns part of development planning. Under this massive program to develop the Mahaweli River basin, three dams will be built to increase food production, rural development and employment by bringing new land under cultivation, and resettling more than 450,000 people.

At the request of the Sri Lanka government, AID is funding an environmental assessment of the project. Although results won't come in until summer, an interim report has identified potential adverse effects on wildlife, which includes six endangered and two threatened species, including the Asian elephant. The Asia bureau has proposed a project for fiscal 1981 to mitigate some of these impacts.

Nepal's most precious "export" may be the 315 million cubic yards of soil its rivers carry to India every year because of soil erosion, caused by harmful agricultural practices and deforestation in the mountainous country. An AID-assisted program in resource conservation aims at helping the country solve natural resource problems through training, research, technical assistance and extension efforts.

Environment, energy important to Latin America

- Deforestation, soil erosion, urbanization and industrialization cause the dominant environmental problems in Latin America.
- Some of the consequences include flooding, desertification, loss of soil productivity, climatic changes such as shorter rainy seasons, declining water supplies, water and air pollution, destruction of wildlife habitat, mounting environmental health troubles, resettlement and social disruption.

Environmental and energy projects are increasingly important for development in Latin America and the Caribbean.

Robert Otto, environmental coordinator for Latin America, points out that the level of concern and capacity to act vary widely from country to country, with only the most developed countries equipped to take effective steps.

Costa Rica, for example, where, from 1959 to 1979, forests had been depleted by 40%, had an official plan of action for the environment when the government began negotiating with AID for a $9.8 million loan. That loan, recently approved, will assist resource management and conservation, through regional planning, reforestation and watershed management and improvement. The loan also is to support planning for a new national park and a new office for forestry and protection of wild lands. In less than 20 years, Costa Rica's forests have been depleted by 40%.

Working with private environmental groups also is important, Otto emphasizes.

AID's Costa Rica mission led the way with a two-year, $240,000 grant

ate on dumping

by Susan Super

damage people's health and the environment." Such actions could prompt resentment against the United States for trying to export domestic problems.

Some African officials already have protested the hazards of accepting toxic wastes. In addition to possible health hazards at sites where waste is handled, leaks could affect ground or surface water, contaminating crops and fish.

The State Department wants to be sure that technical advice is given to any country considering a toxic waste proposal. The United States has supported past U.N. resolutions calling for full disclosure of information on banned or stringently regulated hazardous products destined for export.

Recent State cables requested posts to report any developments in toxic waste disposal, particularly in West Africa and the Caribbean. One cable cited insufficient technical knowledge of how to store, dispose of or safely reprocess many hazardous wastes generated by American industry.

No regulations now prevent American companies from exporting toxic wastes, but recent regulations do require government notification four weeks before export. Industrial wastes are just one aspect of the larger, unresolved issue of exporting hazardous products, some of which may be banned in the States (some pesticides, for example). A task force appointed by the White House has been trying to agree on a U.S.policy on toxic exports for the last two years. ☐

Logs arrive at a sawmill in Ecuador. Overcutting is a serious problem.

in 1978 to a private organization, the Association for the Conservation of Nature (ASCONA).

Countries such as Guatemala, Panama, Ecuador, Bolivia and Peru need more basic assistance in tackling deforestation and soil erosion problems. A number of projects proposed would provide financial and technical assistance, for systems to inventory and monitor forests and natural resources using remote sensing and other techniques; research on agroforestry, fast growing trees and species that stabilize soil; and a credit extension system to help spread useful technologies. Funds and technical assistance come from AID, host governments, the U.N. Development Program, Food and Agriculture Organization, Organization of American States and the World Bank. A regional pesticide adviser whom AID recently hired from the Consortium for International Crop Protection is making a valuable environmental contribution to the effort, Otto says.

The environmental aspects of project design have improved markedly since 1976, Otto reports. Many of the small, social-oriented projects do not require any environmental assessment, he explains, but when the potential impacts of a project do call for an assessment, it is done as soon as possible, along with design.

A joint approach can help countries deal with environmental troubles. For instance, Caribbean countries are working on a regional action plan with help of the U.N. Environment Program, which is encouraging similar plans in other parts of the world.

Near East: Taking a step in the right direction

Major environmental problems in the Near East stem from improper allocation, depletion and pollution of limited water resources, urban land use and management of rural land. Agricultural, industrial and domestic competition for scarce water is growing steadily in these arid and semiarid countries. Poor water and land management have caused deserts to spread, soil to erode and irrigated land to become too waterlogged and saline for crops.

"Near East countries are just starting to do something about their environmental problems," reports Stephen Lintner, environmental coordinator for AID's Near East bureau. "Because patching up problems after projects are completed is difficult, costly and often ineffective, it's critical that environmental considerations become an integral part of development programs at all steps."

The countries need to develop resources, but their desire for large-scale technology often conflicts with their growing awareness of the environmental and health costs. The Aswan Dam is a good example. While it helped Egypt harness its only major source of water, the Nile River, some experts contend it also increased disease and erosion in the Nile delta.

Agricultural mechanization in many instances has accelerated the deterioration of water and soil resources, Lintner points out, but traditional practices can also damage the land. "People collect brush for fuel with a special tool that pulls up the entire plant, roots and all, contributing greatly toward soil erosion and desertification."

The problems are not being ignored. Morocco, for example, is tackling land use problems through improved planning and programs in range and forestry management, Lintner points out.

Rapid urbanization due to migration and high population growth severely strains systems for water supply, disease control and disposal of sewage and solid waste. Noise and air pollution grow, while adequate land use planning is often neglected when cities expand. The region's population, now more than 230 million, is expected to nearly double by the year 2000, with the majority living in urban areas. Half the people in urban areas—and an even higher proportion of the rural population—do not have safe, adequate water.

Agricultural and construction programs may threaten important historical and archeological sites. The ancient Egyptian temples of Abu Simbel were saved from the encroaching waters of Lake Nasser through a massive international effort. Other sites have not been so fortunate, Lintner notes, as ancient structures in many Near East countries are torn apart and reused for building material.

AID's Near East program concentrates on water supply and sewage treatment projects, for both rural and urban areas, through large-scale, capital-intensive projects, in contrast to the small-scale projects in other regions. The bulk of the program (AID's largest regional program at more than $2 billion in fiscal 1980) comes from Economic Support Fund assistance to Egypt, Israel, Jordan, Lebanon, Portugal, Syria and Turkey.

Environmental programs in the region are also on a large scale. In the Egyptian Industrial Pollution Control Program, for example, AID is helping Egypt's General Organization for Industrialization reduce industrial wastes. So far, the program has concentrated on the Alexandria area, but is due to expand to the entire country and also will deal with air pollution and solid waste.

"Environmentally sensitive planning can help prevent many unwanted effects of development projects," Lintner points out. An AID-funded environmental assessment provided the justification to invest in secondary waste water treatment for the Aqaba sewerage program in Jordan, thus protecting tourist beaches, exotic fish and fragile coral reefs in the Gulf of Aqaba and providing treated wastewater to irrigate wind breaks.

Turkey is forging ahead with environmental plans, even in the midst of its widely publicized economic problems. A technically skilled environmental staff is working on legislation to address the country's urgent natural resource problems. Fish are no longer found in some coastal areas because of industrial water pollution, for example. And Ankara has some of the world's most polluted air, caused by the burning of lignite coal and temperature inversions in the mountainous area.

"Many environmental issues, like air and water pollution, must be dealt with on a regional basis," Lintner emphasizes. "Allocation and use of water is a particularly complex area." The preliminary country environmental and natural resource profiles being prepared for AID by the Library of Congress and the Office of Arid Lands Studies at the University of Arizona are very useful as a starting point for discussions with officials in the Near East, he adds. Moreover, this summer, profiles will be completed for Egypt, Jordan, Morocco, Syria, Tunisia and North Yemen. □

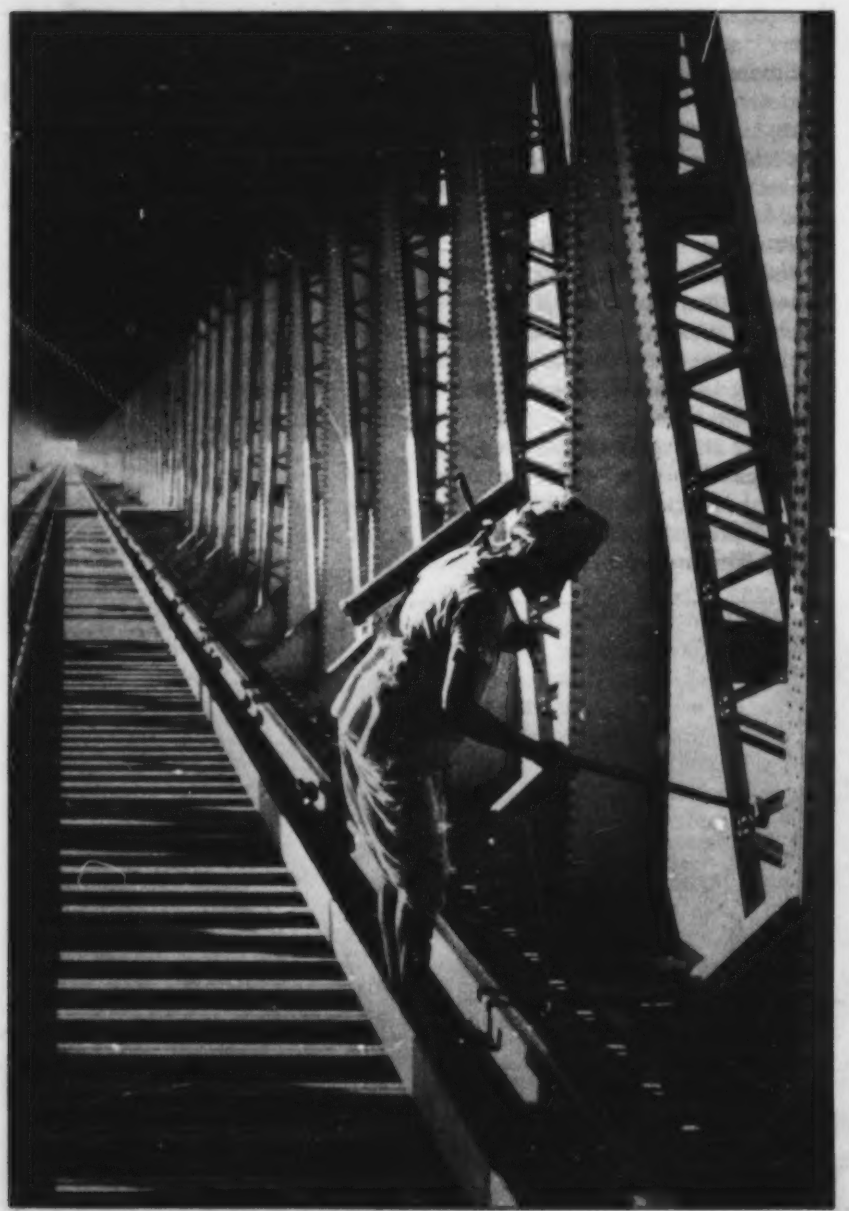
Susan Super is assistant editor of Front Lines, AID's employee newspaper.

Horse-drawn plows, still used in parts of Turkey, prepare the land for planting.

The development-environment connection

In their struggle to survive, poor people are cutting the ground from under their feet.

by Jeff Endrst



A bridge to everywhere. With international assistance, India has built an extensive rail system. But with development anywhere come environmental setbacks.

Development now emerges simply as the effort of people to improve and secure their living environment. The goals of sound development—a better living environment for everybody—include public health and the security of future resources. When these concerns are ignored or overridden, nations may achieve growth but not development.

The development-environment connection is a major theme of many on-going international endeavors. Since the 1972 U.N. Conference on the Human Environment in Stockholm, issues in the development-environment relationship have been clarified:

It is now recognized that technologies and lifestyles will continue to change to accommodate life in the post-oil era and to accommodate man-induced alterations of the environment.

It is now understood that environmental concern reinforces interdependence. And there is growing recognition that the poorest of the poor will, if unaided, literally cut the ground from under their feet by a desperate assault upon their environment as their only hope of immediate survival.

Unless, for example, the international community can help to check the destruction of the Third World's forests (at an estimated present rate of 25 hectares—62 acres—a minute) by offering "forest colonizers" a better alternative than the "slash and burn" subsistence of their ancestors, they will be gradually decimated by starvation following mas-

A careful balance must be reached between industrialization and preservation of the quality of earth, water and air in order to meet basic needs.

sive soil erosion and desertification.

In the meantime, according to the U.N. Environmental Program (UNEP) in Nairobi, with the prospect of the Third World's entire forest cover disappearing less than 50 years from now, climate change, erosion and siltation could so alter the earth's life supporting capacity that mankind may well be shown the way to dusty death.

Recognizing this, the U.N. Development Program (UNDP) has been intimately and inevitably involved in the work of environmental protection and improvement. UNDP has devoted $622 million during the past 12 years to 650 projects to develop the natural environment. This includes animal and plant life, water and soil, weather prediction and air quality, and mineral discovery and production. Another $965 million has been devoted to improving the human environment, to rural and urban communities, to transport, to population education and training, to energy production, communications, and improved social infrastructure. U.N. economic planners say the goal of environmentally sound and sustainable development could be one of the major unifying themes of international development strategy.

Meanwhile, development sometimes appears the cause of some environmental setbacks. The Third World countries are still clamoring for the right to develop with the assistance of nuclear power plants, while potential radiation danger from such plants in the industrialized countries is arousing ever-greater political passions.

Surprisingly, however, nuclear power dangers were not even featured in the 1979 State of the Environment report issued by UNEP. The report instead focused on noise pollution, the social and environmental consequences of unguided tourism, the spreading snail scourge, and the comeback by insects and mites against pesticides.

Schistosomiasis (snail fever) has now become one of the world's greatest health scourges, with an estimated 200 million victims. Noise pollution caused 16,000 people to lose hearing in one year in Sweden alone. International tourism has jumped to 243 million "arrivals" a year and is rapidly degrading some of the most beautiful places on earth. About 364 pests—from the malaria mosquito to the boll weevil—have now developed resistance to the pesticides used against them.

UNEP warns that snail fever now threatens over 600 million people in 72 countries. Ironically, development itself has paved the way for its advance. Thousands of dams and irrigation schemes have provided wide new breeding grounds for the fresh-water snails that carry the schistosomiasis parasite.

Suicides in Bolivia are sharply up among potato-growing farmers who have lost hope that new chemical weapons could be effective against moths plaguing their fields, or that they could return the creative potential of the land.

Billions of dollars have been spent to promote greater production of food around the world through pesticides. Now pests are fighting back. One of the immediate consequences is a dramatic resurgence of malaria. UNEP warns of the danger that all pests are likely to develop resistance to all types of chemical pesticide in time, with grave effects on both world health and world food production.

Efforts to legislate against the noise menace date back to an ancient Roman ban on chariot racing at night. Today, some 500 occupations are noisy enough to endanger hearing. Noise also causes high blood pressure, and even ear, nose and throat disorders. The common psychological symptoms of irritability, tension, moodiness and fear may only hint of the effect.

The tourist in developing countries brings money, creates jobs, builds hotels, roads and airports. But he may also menace the environment. The tourism boom can create economic and even racial tensions. It can spark aspirations toward lifestyles totally out of reach of Third World people.

UNEP argues that it is essential to prevent serious damage to the environment and heritage, but also to preserve the pleasures and benefits of tourism itself, by striking a balance between developmental and environmental needs of a country. ☐

Jeff Endrst is the UN correspondent for Development Directions, a Canadian International Development Agency publication. His article is reprinted with permission.

Man vs. pests: Who's winning?

U.S. scientists find ways to end scourges in developing countries.

by Alexanderina Shuler

What do quelea, eared dove, monk parakeet, vampire bat and rat have in common?

They're pests. They annually destroy millions of pounds of grain each year in Third World countries. That's millions of pounds less to eat for a quarter of a billion men, women and children who already do not have enough food. And for many of them, pests tip the fragile balance between life and death.

To a few dozen scientists working in laboratories at the foot of the Rocky Mountains in Denver, CO, and their colleagues stationed overseas, fighting vertebrate pests is a challenge. What these men and women at the U.S. Fish and Wildlife Service's Wildlife Research Center find under microscopes, in laboratory cages and farmers' fields is helping people in Africa, Latin America and Asia.

Experts estimate that 25% of the world's pre-harvest crop losses, is due to vertebrate pests. Farmers' reports of total crop destruction are common. In 1978, most Kenyan and Tanzanian farmers reported 60%-plus losses of wheat, rice, sorghum and millet.

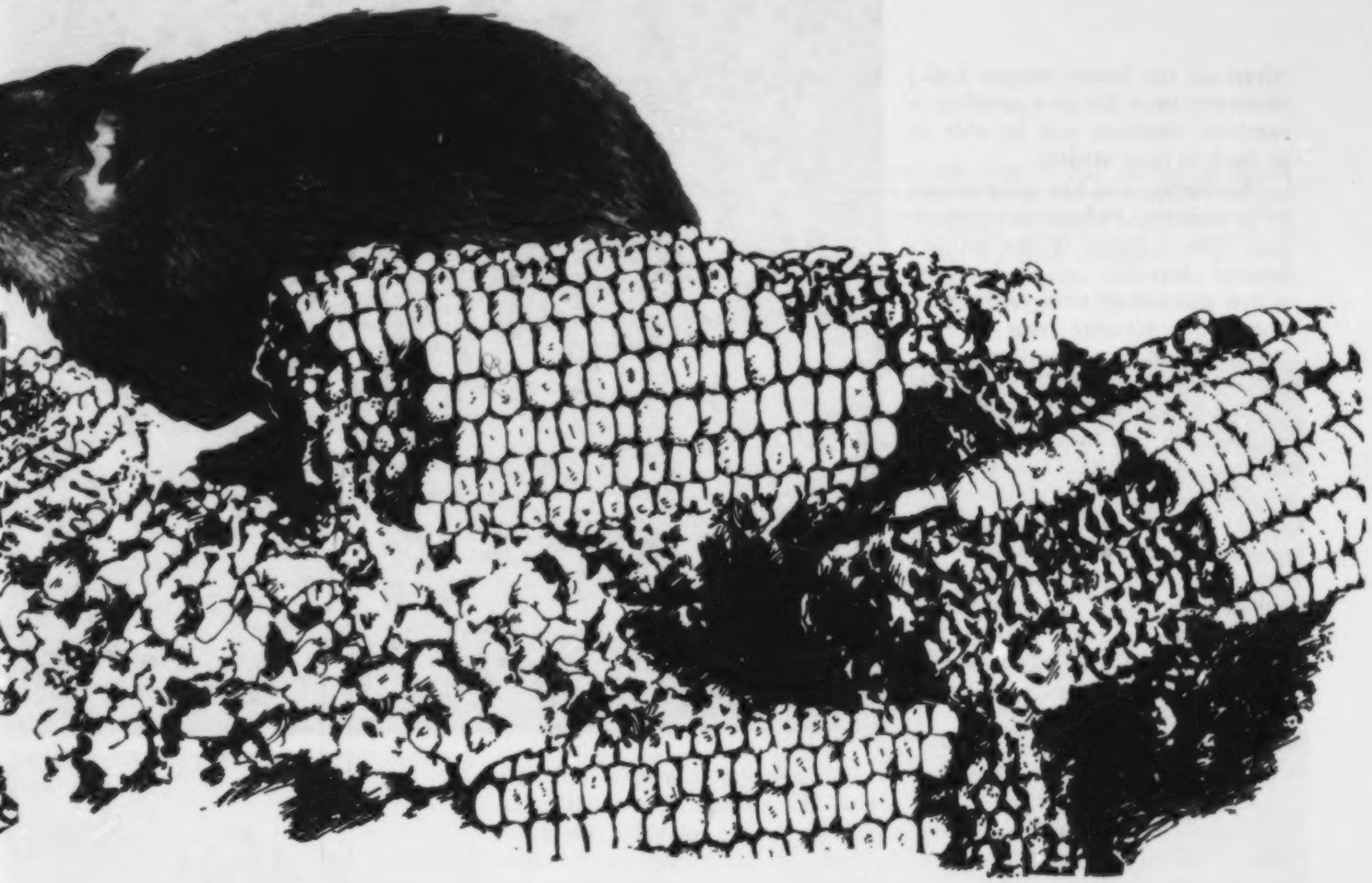
Waging war against pests is no easy task. Until recently, food losses were blamed mostly on microscopic organisms—or man—with only passing mention of vertebrate pests. Thus, there is limited information on the species involved, degree of damage or socioeconomic impact.

Nor can success come overnight. Scientists at the Denver center, established in 1940, have been working with AID for 13 years to develop safe, effective and economical pest controls for small farmers in developing countries.

Sounds simple enough to the average American housewife who puts a little red "Ant Trap" tin in a corner of the kitchen. But to the poor farmer in a remote Indian or Philippines village, the battle is more complex, and the odds are not in the farmer's favor.

Take the rat. It reproduces quickly and is virtually indestructible. In their one-year life span a pair of rats—theoretically—can have 15,000 descendants. Rats have been known to tread water for three days and survive five-story falls. Years after the U.S. government completed atomic tests in the western Pacific, scientists landed on the island of Engebi to find near total destruction—and big, fat, healthy rats.

In the face of discouraging odds, the Wildlife Center is plowing ahead with AID support. Internationally recognized as a leader in developing methods and material



for vertebrate pest control, the center has directed its staff of ecologists, physiologists, pharmacists, statisticians, engineers and others to pitch in as needed to help the people assigned to international pest control.

The center currently is concentrating its efforts in Bangladesh, the Philippines, the Caribbean and Sudan, countries with problems commonly found in the Third World.

Center biologist Richard Poche, for example, is in Bangladesh helping the government assess its rat problem, evaluate control techniques and teach counterparts administrative and technical angles. In a national survey last year, Poche and his counterparts found that rats destroyed more than 12% of the wheat crop alone before harvest. Studies to determine pre-harvest rice losses are now underway.

Poche, who has worked for a U.S. environmental group, for AID in Nepal and for the Peace Corps in Niger, faces some unique problems in his fight against pests. For example, Hindus have an aversion to killing any living thing, even the rats that take the food from their mouths.

The Philippines government has a head start combatting rats. The National Crop Protection Center, the Bureau of Plant Industry and seven Regional Crop Protection Centers are hard at work on all kinds of pests. The program, recently assisted by a $5 million AID loan, grew out of an effort begun in 1968 to intensify crop protection in the Philippines.

New seeds, fertilizer and improved agricultural methods introduced in the 1960s by the Green Revolution boosted not only rice production in the Philippines, but the population of rats and other pests. Denver researchers and their counterparts suggested that farmers could head off damage at the time of planting. To give farmers an incentive, the government incorporated rat control into farm loans, but only if farmers carried out recommendations to put bait in the fields and keep the containers full until the crop matures.

In a pilot area in Mindoro, damage was cut 96%, crop yield went up 81% and farmers' profits increased 166%. Center scientists hope a similar approach will work in Haiti and the Dominican Republic where rice culture—and rat behavior—bear striking similarities to that in the Philippines.

The pest control effort may have an interesting side benefit. In many developing countries, children stay home from school during the growing season—as long as six months—to scare birds away or kill rats.

(Even so, the losses remain high.) However, once the pest problem is resolved, children will be able to go back to their studies.

The Philippines has good reason to be concerned about its rat problem. The country is the world's leading exporter of copra—from which coconut oil is derived. Coconuts are a favorite treat of rats. What is needed to save this important export crop is a rat control that will work on all species—and not lead to one species replacing another. As Wildlife Center pharmacologist Peter Savarie explains, "Many commercial rodenticides are available, but are not equally effective against the many species of rodents." He warns, however, each case requires careful study and often, adaptation of methods.

The Philippines program has a good base, he says. "I believe we can now go to many other countries and draw on our Philippines experience extensively."

Recently, AID's Latin American officials gave the go-ahead for several pest control projects in the Caribbean region, where birds are as much a nuisance as rats. In one year, the Dominican Republic lost $27 million in rice and cocoa to the plundering of the two pests. As much as 77% of crop losses in Guatemala, Honduras, El Salvador, Nicaragua and Costa Rica are at the small farm level, where it hurts the most.

Battling still another nemesis, the Wildlife Center and AID scored great success in controlling *Desmodus rotundus*—the vampire bat common in much of Latin America. These horror-film stars were causing havoc to the cattle industry until Wildlife Center scientists and their Mexican counterparts developed an anticoagulant that would kill off the pests without harming the cattle. At the same time, technical advisers taught the people how to set up and carry out their own control programs.

Dan Thompson, a chief scientist with the center, reports that 16 Latin American countries now have bat eradication programs. The most effective is in Nicaragua, where, before the AID-assisted research project, the country suffered an annual loss of $2.4 million. Now, cattle losses due to the winged creatures are virtually non-existent. The social impact also is impressive; people are aware of the problem and have more confidence in the government for having undertaken the program. Equally important, the anticoagulant technique has no adverse effect on the environment.

The culprit in Sudan is the quelea, or red-billed weaver, credited by many as being the world's most numerous and destructive bird, daily consuming twice its weight in sorghum, a staple in the human diet. A colony of several million quelea is not unusual. Because they congregate in such large numbers, crops in one colony's feeding range are often completely destroyed. Despite large-scale government operations since 1946, the quelea population is still very high. Reason: Only a small number of nesting and roosting sites can be found and treated each season.

The Wildlife Center is collaborating on the quelea problem with the Sudanese government as well as with U.N.-assisted projects in Kenya, Ethiopia and Somalia. Many African countries have spray teams tackling the problem, but results are temporary and limited. The center is exploring better ways to pro-

Clockwise from left: Birds destroy millions of dollars in crops each year. Wildlife Research Center biologist Richard Poche is helping Bangladesh control its rats—destroyers of 12% of the wheat crop alone. Farmers in the Philippines beat the bush to roust out rats. The Latin American cattle industry has fallen prey to vampire bats, but scientists have found a way to control the pests.

tect farmers' crops. Field tests will determine how effective some promising strategies developed at the center will be. Spinoff benefits from related work in the Philippines, Latin America and the United States will also help.

"We can educate birds," says Ed Knittle, a biologist working in bird damage control, who points out there is more than one way to solve the problem. It's not so strange a statement. Birds feeding on certain chemically treated baits in grain fields send out distress signals to the rest of the flocks, scaring them off.

Despite some promising inroads, poison and scare treatments are not a panacea. Killing pests does not provide a lasting solution. Center researchers believe that protecting the farmer's field is often the most practical approach to the problem in the Third World. That is not to say that science cannot keep pace with the situation. New poisons are constantly being developed, and devices such as electric fences are being tested.

Sometimes, Wildlife Center scientists team up with experts in other fields. Center biochemist Roger Bullard notes that John Axtell at Purdue University is working, with AID support, to develop more nutritional sorghum varieties. The plant geneticist won a prestigious international award in 1976 for his AID-sponsored work on sorghum.

"We were interested in finding varieties less susceptible to bird damage, and we coordinated our efforts with Axtell's," Bullard says.

Most sorghum varieties now recognized as having bird-resistant qualities have high tannin content. Unfortunately, the tannins that produce the resistance also reduce the nutritional quality. Changing to another crop is generally not feasible on marginal lands. The objectives of the center's efforts on bird-resistant sorghum have been to develop laboratory methods for defining genetic characters that contribute to bird resistance, to identify possible varieties and to check bird response in the field.

In another lab, electronics engineer Laurence Kolz developed miniature radio transmitters that allow experts to track rodents and small birds to study their behavior and movements. He and his staff built a tiny 2-gram radio to fit on the African quelea. Kolz also designed transmitters to track polar bears and sea turtles via satellite.

The bulk of the center's international effort originates in the United States, goes overseas for testing, then comes back for refining. Eventually, the work helps overcome problems in this country and abroad.

Some of the center's international work—for example, in Uruguay, deterring eared doves from sorghum fields—may have application to the blackbird problem in Kentucky. Successful experiments to reduce damage by ducks to emerging rice in Uruguayan fields have been carried out and center biologists are planning tests using the same method on rice in southeastern United States.

Although it has no formal training facilities, the center attracts visitors who want to learn. They come from U.S. universities to gain practical experience in wildlife research. They come from overseas to work with the center's research staff on common problems. They come to do research for graduate theses, drawing on the center's data, using its specialized library and working with scientists in Denver or at field stations.

Periodically, at AID's request, the center sends some of its biologists overseas to assist with training programs or field demonstrations in developing countries. A seminar on bat control in Paraguay, a rodent control training session at the Bangladesh Agricultural Research Institute and a bird control workshop in Tanzania are examples.

"We lay the groundwork for self-sufficiency," one center scientist says. "We like working with AID—it's good for U.S. foreign policy." ☐

Alexanderina Shuler is editor of Front Lines, AID's employee newspaper.

The Zambian people have made great contributions to the historic victories of the people of Zimbabwe [who recently elected the first internationally recognized black majority government in the history of that country]. We have paid dearly in resources, in human life and property."

These words spoken by Zambia's President Kenneth Kaunda recently in a speech before the Zambian National Assembly reflect the conviction of nearly all Zambians that, through great sacrifice, they have helped lay the foundation for peace and for "an important economic power bloc" in southern Africa—one that is based on majority rule. And now that the war in Zimbabwe is over, Zambians recognize an opportunity to redirect resources and energy into development, not only in Zambia, but in other southern African countries as well.

Southern Africa, rich in miner-

In the eye of a storm

Zambia holds a steady course for peace and progress.

text and photos by Emmett George

als, is beset by conflict, political turmoil and poverty. It is the target of eastern bloc influence and has become increasingly important to the United States. Against this backdrop, U.S. economic assistance is important in achieving peaceful transition to majority rule; in supporting development, economic stability and pragmatic solutions to development problems, and in encouraging regional cooperation toward a more balanced economic interdependence in the area.

A good part of the sacrifice Zambians feel they have made to peace in the region, and to black majority rule in Zimbabwe, can be traced to Zambia's geographic location. Zambia is surrounded by Angola, Zaire, Tanzania, Malawi, Mozambique, Namibia, Botswana and Zimbabwe, nearly all until recently involved to some degree in political conflict. Zambia's proximity to battle zones and the relative stability of its own government have made it a haven for over 45,000 refugees displaced by fighting.

But the influx of refugees—and rebel forces—also have made Zambia the target of bombing raids that have played havoc with an already-troubled transportation system. Moreover, two of Zambia's essential trade routes to the sea were severed in the fighting. Without access to major ports, Zambia has not been able to get exports—primarily copper—out or food imports in. The effect on the economy has been devastating.

Overall, Zambia's economy, not unlike economies in other southern African nations, has suffered for the past four years as population growth has outpaced real income growth. The economy has always been heavily dependent on copper exports for foreign exchange, and with both transportation disruptions and periodic declines in world copper prices, budget deficits have soared to over $500 million a year. Although in 1978 Zambia accepted a stabilization program that included credits of over $300 million proposed by the International Monetary Fund, economic recovery is not yet within reach.

The country's transportation woes date to 1973, when civil strife in Rhodesia closed the southern border, which traditionally gave Zambia access to southern African ports. Two years later, the Angolan civil war denied Zambia another access route, leaving the country solely dependent on the eastern Tarzara route to Dar es Salaam in Tanzania and the less efficient route to Beira in Mozambique.

But closing borders and cutting off main travel routes has not stopped the steady stream of refugees into Zambia. And while Zimbabweans have begun to go home—a result of the recent elections

32,000 remain. The United States and the United Nations are helping repatriate the Zimbabweans; busloads of thousands of refugees are now relocating from camps near the northern mining town of Solwezi to another site near Livingston on the southern border with Zimbabwe. Yet at the same time people fleeing Angola and Nambia continue to pour into Zambian camps.

The drain on Zambian revenues caused by sheltering and especially by feeding these refugees has become particularly acute as recurring drought depletes food supplies.

Last year, drought forced Zambia to seek food aid from the United States, the United Nations World Food Program and other donors. The Agency for International Development provided 55,000 tons (50,000 metric tons) of corn under Title II of the Food Assistance Act (emergency food aid). And this year's crisis more than any other single factor underscores the fragility of Zambia's economy.

Over the next several months Zambian officials must find a way to transport some 102,300 tons (93,000 metric tons) of U.S. corn (PL 480—food aid) needed to offset a national corn shortage of over 220,000 tons (200,000 metric tons). The drought, coupled with a lack of fertilizer—little has come through the now congested ports in Tanzania and Mozambique—has brought the country face to face with a national famine.

This year the United States is providing 91,300 tons (83,000 metric tons) of corn under Title I, which will begin arriving in late spring. Under Title I, the food is provided on long-term credit to Zambia, which in turn will sell it commercially to consumers and use the proceeds to improve domestic agriculture programs. In addition, 11,000 tons (10,000 metric tons) of corn will be donated (under Title II) as emergency food aid. Zambia also has signed a $17 million commodity

loan agreement, which provides for the purchase of fertilizer, seed and equipment to increase food production.

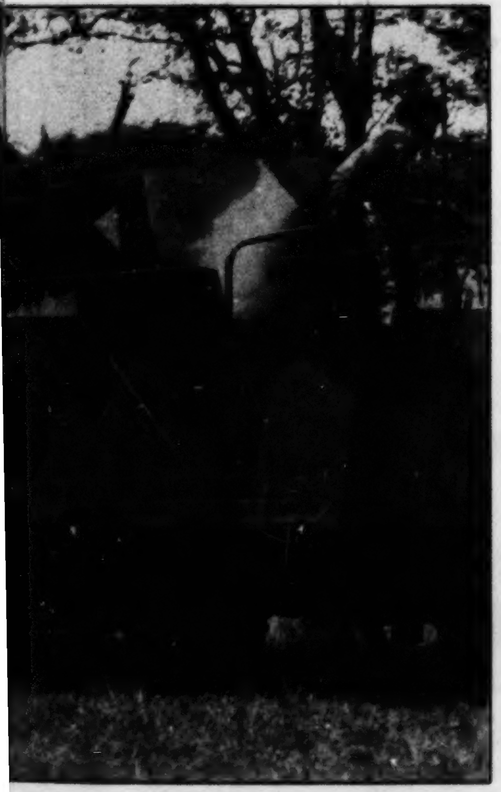
"Under the best of circumstances, the people still face a critical food crunch in May and June," according to Joan Johnson, AID Food for Peace officer. "The people in farming areas can begin eating their crops as early as May, but the buying campaign conducted by the Zambian National Agricultural and Marketing Board (the official marketing board), which feeds most city dwellers and people living outside the farm areas, doesn't get underway until July." Some 40% of Zambia's 5.6 million people live in cities or towns.

Zambia also is plagued by shortages of cooking oil, salt, sugar, laundry soap, tea, cocoa and baby food. All commodities, especially corn, are in critically short supply in the Copper Belt, the principal metal production region, in the Lusaka district and in the northern and Luapula provinces.

All the problems pressuring Zambia seem to be tied into transportation—or the lack of it. Therefore, perhaps the first order of business for the struggling country is to revitalize its railway and trucking operations, still in chaos after Rhodesian forces destroyed 15 bridges late last year.

Without those bridges, food for the people and mechanical equipment, especially spare parts for trains, and trucks and mines, cannot get into the country. Equally important, essential exports—copper, zinc, cobalt—cannot reach key ports in Beira, Dar es Salaam, and East London and Durban in South Africa.

While copper is Zambia's leading export, last year Zambia and Zaire together produced about 40% of the world's cobalt. Cobalt is a heat- and corrosion-resistant metal used in aircraft engines, drill bits and other items and as a catalyst in petroleum refining and paint-



***Clockwise from top:* Workmen at the Lusaka NAMBOARD depot bag yellow corn from the United States. With U.S. help, some 40,000 refugees are returning to Zimbabwe. Zimbabweans wait to cross the Victoria Falls Bridge, and go home. Zambians use traditional methods to grow white corn.**

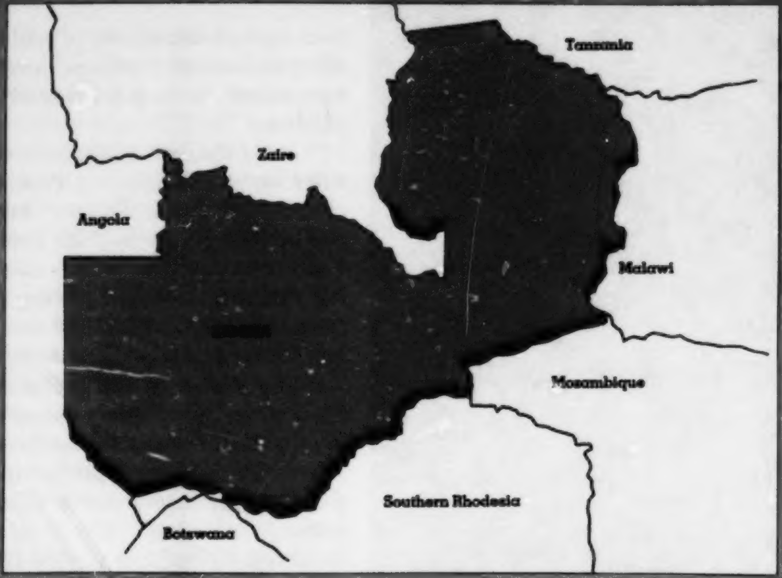
making. The United States alone imports each year about 100,000 tons of cobalt and 45,000 tons of copper, collectively valued at $150 million.

So disruption in the transporting system, recurring drought, the refugee burden and periodic declines in world copper prices over the past several years, coupled with the country's inability to fill copper and cobalt orders, have cost Zambia millions of dollars in lost revenue. Assistance from the International Monetary Fund, the United States, Britain, West Germany, Japan and other nations is helping.

The United States, which views Zambia as essential to political stability in southern Africa because of its location and respected position in African politics, plans to provide nearly $27 million in assistance in fiscal 1981. AID is planning a $4 million agricultural research and extension project, and a $3 million project to train technical personnel, in addition to the commodity import loan, and food aid. Additional help will come from Great Britain, West Germany, Japan and other nations.

Zambia's economic difficulties have made the government keenly aware of the need to diversify its economy and reduce its dependence on copper and other metals. Agriculture must be improved to cut expensive food import bills and food subsidies. In the meantime, the Zimbabwe peace settlement has made it possible for Zambia to concentrate on economic development for the first time in years. The peace accords also have restored important trade routes to the south. These improvements in the political and economic scene in southern Africa will help Zambia realize its development goals. ☐

Emmett George is a public information officer in AID's Office of Public Affairs.



Zambia, formerly Northern Rhodesia, is slightly larger than Texas (Zambia: 290,724 sq. mi.). Its population of 5.6 million is growing 3% a year, while its per capita gross national product ($450 in 1977) is growing 1.5%.

Zambia was the first British territory in Africa to become a republic—immediately upon attaining independence in 1964. The constitution, established in 1973, set up national elections for what is now called a "one-party participatory democracy." The 1973 constitution provided for a strong president and a National Assembly.

The Zambian economy is based almost exclusively on copper, of which the country has traditionally been the world's third largest producer (after the United States and Canada) and the second largest exporter. Copper accounts for half of Zambia's GNP, 96% of the value of its exports and one-third to one-half of all government revenue.

A major objective of the Zambian government is to use the country's mineral wealth to advance the economic and social welfare of the entire country. Formerly foreign-owned, most industrial and mining concerns now are primarily government-controlled.

Economic development has been confined largely to the area along the rail line from the Copper Belt in the north to Livingston in the south. In view of depressed world copper prices, the government hopes to become self-sufficient in food production, establish new industries based on agricultural products and reverse the drift of rural unemployed into the cities.

In foreign affairs, Zambia follows a policy of nonalignment and has taken a leading role in the non-aligned nations movement. Its major foreign policy concern is to promote majority rule in South Africa and Namibia. Zimbabwe, formerly Rhodesia, has succeeded in achieving that goal.

Relations between the United States and Zambia have been good. From 1946 through 1978, the United States has provided $79.1 million in economic assistance to Zambia. AID's program supports the U.S. objective of peaceful settlement of the conflict in southern Africa. More broadly, U.S. goals are to support Zambian stability, self-reliance and development so that the country can pursue equitable economic growth despite current political, military and economic turmoil in the region. ☐

Self-Help: Key to meeting basic human needs?

There is a growing wave of self-reliance in the Third World.

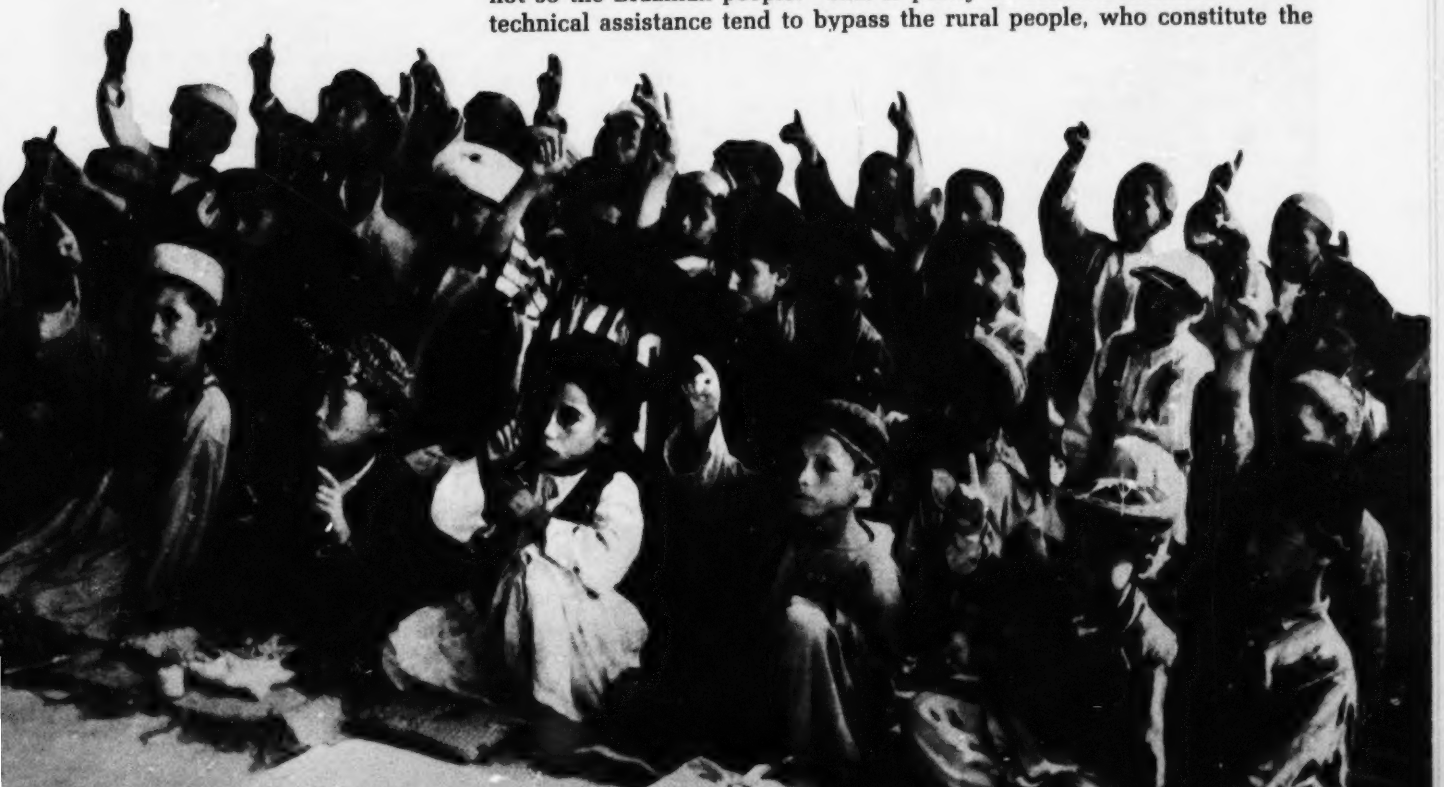
by Andre Van Dam

An estimated two-thirds of the Third World's homes are built and occupied by the owners. After food, shelter is the most basic human need, if only because other needs are satisfied in relation to the home: food preparation and storage, child care and education, health, social life, and often, work.

In Lusaka, Zambia, squatters build their own homes and landscape their plots. The example of Lusaka reflects a growing wave of self-reliance in development. The 1980s may well come to convince most policy-makers that the key to meeting basic human needs in the Third World is the participation of individuals and communities in local problem-solving.

The focus on meeting basic human needs as the overwhelming goal of development stems from the bitter experience that economic growth —no matter how substantial and protracted—does not necessarily trickle down to the poorest people, who should stand to benefit most from it. In addition, the sheer transfer of sophisticated know-how to backward regions does not guarantee development. The sight of Bedouins pitching their tents at the doorsteps of apartment blocks built for them by the government, and sheltering their goats inside the building, acknowledges the limits to which the wonders of technology can be assimilated within one generation.

Brazil's former President Medici, who, when asked how his country was doing, used to reply wryly: "Brazil is doing all right, thank you, but not so the Brazilian people." This is partly so because financial aid and technical assistance tend to bypass the rural people, who constitute the



majority of the Third World population. This causes, in addition, floods of migration to urban centers that can neither provide their swelling masses with jobs nor satisfy other basic needs. Local problem-solving as the key to development, therefore, start in the rural areas.

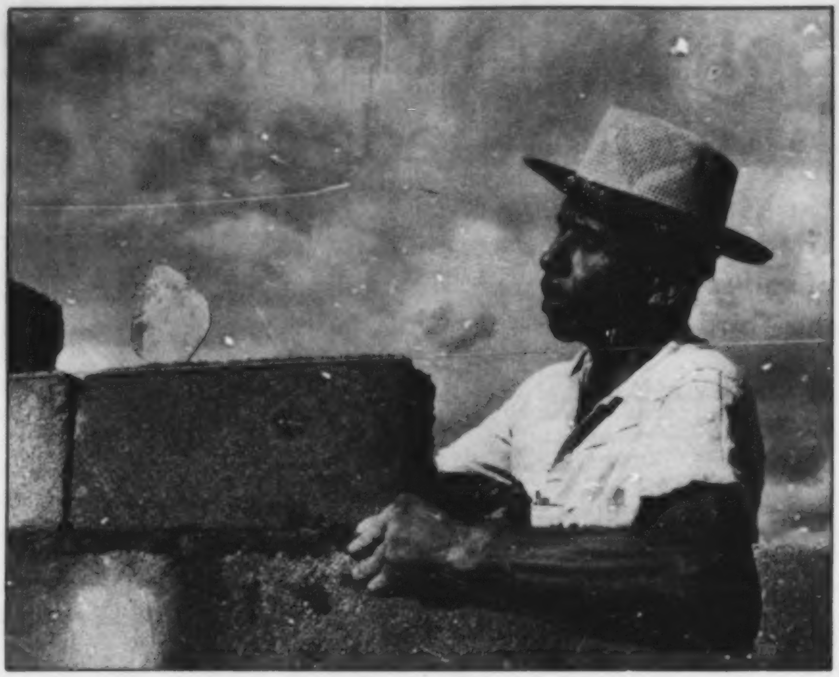
Food

Throughout the ages, people have struggled to obtain enough food. No developing country can blindly copy successful recipes of food production, but they might be inspired to home-grown solutions of meeting basic needs. For example, Third World nations may learn a lesson from Taiwan's successful land-to-the-tiller program which, in one generation, doubled the number of farm families.

Surveys undertaken by the U.S. Agency for International Development in Brazil, Colombia, India, Guatemala, Mexico, Philippines, and South Korea indicate that small owner-operated farms enjoy a higher productivity per hectare than large farms. Under certain circumstances, small-scale owner-operated farms may be induced to form cooperatives.

In socialist countries, there is an awakening to the fact that private farm plots are more productive than collective agriculture. In China, for instance, one-fourth of the people produce their own vegetables and much of their own meat (pigs, poultry).

In America, an estimated 30% of the population raises fruits and vegetables wherever possible, partly to offset the rising cost of food. It comes, therefore, as no surprise that many Third World governments have come to stress home vegetable-growing as a means of improving nutrition. Jamaica's "grow your own food" campaign, for example, doubled the proportion of home-grown food in many rural regions in just over a decade. Thus, rural Jamaicans spend proportionately less income on food and, in the process, reduce the incidence of malnutrition.


"An estimated two-thirds of homes in developing countries are built by owners."

Shelter

To own one's home on one's own land is a deeply ingrained desire. This explains why in Mexico 60% and in India 80% of homes—no matter how poor—are owner-occupied, and that an estimated 65% of all homes in the Third World are built by private initiative and efforts.

Shelter lends itself eminently to "do-it-yourself." Squatters built the 300,000 houses in Chile's "Hogar de Cristo" from prefabricated wooden parts to replace their cardboard and sheet metal shelters. In Iran's Lorestan community, the usual mud-and-brick dwellings were built, but they are connected to collective latrines detached from the living quarters. Using mud and brick as basic materials, an Egyptian architect has added bitumen, paraffin emulsions and asphalt to stop moisture from seeping up from the ground.

Health

China's rural barefoot doctors and urban "worker doctors" provide basic health care, both preventive and curative. They diagnose and treat common diseases, run village health centers, and disseminate birth control information. They use indigenous herbal medicines as well as modern techniques. Tanzania's government provides the Ujamaa communal villages with dispensaries staffed by medical helpers and supported by fellow villagers.

These examples reflect the importance of self-reliance in meeting basic health needs. It demands a fundamental rethinking of the relationships between communities and their health services, the involvement of paramedics and nonprofessionals, and the role of women where taboos and prejudice now bar them from giving such help. Cuba employs housewives and retired women who have minimal training to check hygiene, diet and minor illnesses of pregnant women and children.

The other basic human needs most frequently acknowledged are clothing and education. And while it is not immediately evident that firewood constitutes a basic need, it is a vital raw material for shelter and fuel. Wood also is often required to make ploughs, build furniture, tools, fences, paper and handicrafts.

Another basic need that is often underestimated is water. In Botswana, for instance, a country whose territory is largely covered by the Kalahari desert, both the currency and common greeting are expressed by the word "pula"—which means rain, a scarce commodity. Botswana's recent discovery of a huge diamond mine may catapult the nation into the modern age, but is insufficient to defray the cost of pumping the crystal clear waters of Okavango across the Kalahari desert to where most inhabitants live.

Although self-help and a community spirit may not provide Botswana with adequate water, it goes a long way to satisfy basic needs. It is therefore necessary that development decisions be made as close to the grassroots as possible. Financial and technical assistance from abroad, no matter how important, should be instrumental in mobilizing local resources and talents, not in superimposing what may be an alien model of development.☐

Andre Van Dam is a writer with the International Development Research Centre in Canada.

"After food, shelter is the most basic human need, if only because other needs are met in relation to the home."

The Brandt Commission report... Formula for survival?

After two years of study, the Independent Commission in International Development—better known as the Brandt Commission after its chairman, former West German Chancellor Willy Brandt—recently released its findings. Its report outlines what the commission sees as a North-South program for survival—a list of long- and short-term recommendations for improving cooperation between industrialized countries and the Third World. Copies of the study are being distributed to all U.N. member nations.

Warning that the world "cannot wait" for longer-term solutions to pressing world problems, the Commission has set forth an emergency program for 1980-85 to, among other measures, promote a large-scale transfer of resources to poor countries to "avert impending catastrophe" in the face of disarray in the international monetary system. If enacted, this would raise current levels of transfer by $50 to $60 billion a year. Other key "emergency" proposals include: a global food plan, an international energy plan, major reforms in the international economic system.

Recommendations through the year 2000 describe a world development fund that would channel loans to poor countries into more general needs rather than earmarked projects; a commitment by developed nations not only to live up to their promise to devote 0.7% of their GNP (gross national product) to development assistance, but to increase the amount to 1% by the end of the century; and an international tax on trade, sea minerals and weapon sales to raise money for poorer nations.

The report is the result of an independent investigation by 18 international leaders from North and South—all meeting as private citizens. Set up in 1977 largely at the suggestion of World Bank President Robert McNamara, the commission has emphasized the interrelation of nearly all problems plaguing the developed and developing worlds.

In an introduction to the document, Brandt says:

"Our report is based on what appears to be the simplest common interest: that mankind wants to survive. . . . .

"There is a real danger that in the year 2000 a large part of the world's population will still be living in poverty. The world may become overpopulated and certainly will be overurbanized. Mass starvation and the dangers of destruction may be growing steadily—if a new major war has not already shaken the foundations of what we call world civilization."

The problems the commission describes are not new, nor are many of the solutions it advances. What may be a departure from rhetoric heard in recent years is the intensity of the call for cooperation and the fact that it comes from a group of savvy, high-level leaders who shed their public mantles to spur effective analysis and discussion free of political overtones.

The concept of mutuality advocated in the report neatly draws—perhaps for the first time—the connection between foreign debt, recycling OPEC surpluses, the problems of bank exposure and protectionism. It further links minerals and energy problems, commodity issues and the need for a better way of controlling the behavior of multinational corporations.

In some of its braver portions, the report calls for what amounts to an international tax on national income, further demonetization of gold and the use of the International Monetary Fund's remaining stock of 100 million ounces for development, and support for the Common Fund, which would allow poorer countries greater participation and profit in the sale of commodities. The commission jabs at industrialized countries for dragging their feet in helping poorer nations develop an industrial base. Making a strong case against protectionism, the commission argues that further industrialization in the Third World will not threaten industrial countries since it should create as many jobs as it destroys.

The commission strongly emphasizes that Third World governments bear responsibility for ensuring that the benefits of development are divided up fairly—that they reach the poor.

Finally, the report calls for a summit of world leaders from industrialized and developing countries to concentrate on the emergency program.

"The search for solutions is not an act of benevolence, but a condition of mutual survival," the commission concludes. ☐

WHAT THE MEDIA SAY...

There is no end in sight to the flow of refugees from Indochina, and the amount of aid needed to feed and resettle them is outstripping international resources, the State Department told Congress....

—Baltimore Sun

Economic concerns at home and U.S. setbacks abroad are stirring up the heaviest opposition in years to America's foreign aid programs.

As a result, fewer and fewer members of Congress are willing to defend foreign assistance or resist a growing effort on Capitol Hill to slash aid programs as a step toward balancing the federal budget.

What discourages many lawmakers is that instability and anti-American hostility continue to flourish around the globe despite U.S. foreign-aid expenditures of nearly 195 billion dollars since World War II.

Says Rep. C. W. "Bill" Young (R.-FL): "There is a general feeling the world is ripping us off. The American people are just fed up with the way their foreign aid dollars are being spent."

But, argues Rep. Paul Findley (R.-IL): "Despite its failures, foreign aid is indispensable for our nation. We have no choice."

—U.S. News & World Report

For the first time in its 34-year history, the World Bank next year will begin direct financing of health projects designed to bring preventive medicine and simple health care to the poor in underdeveloped countries.

—New York Times

As if to prove the adage that misery loves company, President Carter began his economic message . . . by noting that virulent inflation had become a "worldwide problem." Indeed, inflation now appears to be an entrenched global phenomenon. The Paris-based Organization for Economic Cooperation and Development predicts an average inflation rate of 12.5% for industrialized nations in 1980, marking the first time that its annual forecast has ranged into double digits.

In some of the less developed nations, inflation has reached the point of absurdity. Rampant inflation in such Third World countries as Zaire (more than 90%) and Argentina (more than 120%) has been fueled for years by economic mismanagement, corruption, and deficit spending financed by the uncontrolled growth of the money supply. The newest member of the triple digit club is Israel, whose current 121.4% inflation rate has been caused largely by heavy defense spending, high oil prices, public works, and costly social welfare programs.

—Time

Tanzanians will have enough food to eat until harvest time in June and there is no danger of famine, Tanzanian Agriculture Minister John Malecela said . . . , adding that Tanzania has taken "elaborate measures" to import enough food to see the country's 18 million people through until June.

But he said he could see a "possible food shortage" if crops should fail due to lack of rain. Mr. Malecela said that negotiations are underway with "friendly countries" to provide food after June.

—Journal of Commerce

"I wish the Americans would just leave us alone," a Guatemalan businessman said. "If we want to kill each other off, it's our business. The United States has no right to interfere."

As leftist unrest has grown in Guatemala in recent months, conservatives inside and outside Guatemala's army-backed government have expressed mounting irritation with the United States, apparently blaming the Carter Administration's human rights policy for the convulsed state of Central America.

In reality, distracted by the crisis in neighboring El Salvador, Washington has yet to design a clear policy toward Guatemala and has disappointed some human rights advocates with its mild criticism of the repression of opposition and peasant organizations in Guatemala by the army and right-wing paramilitary gangs.

—New York Times

Most of the West's diplomatic attention focuses on such trouble spots as Southwest Asia and the Middle East. But ferment and change are brewing in another part of the world—the Caribbean—which one day could pose severe challenges if not attended to. There are some signs of awakening in Washington, London and other capitals to the danger. The question is whether the heightened interest in the region will be backed up by sufficient and sustained Western economic and other resources to bring about needed progress and stem spreading Cuban influence in the area.

—Christian Science Monitor

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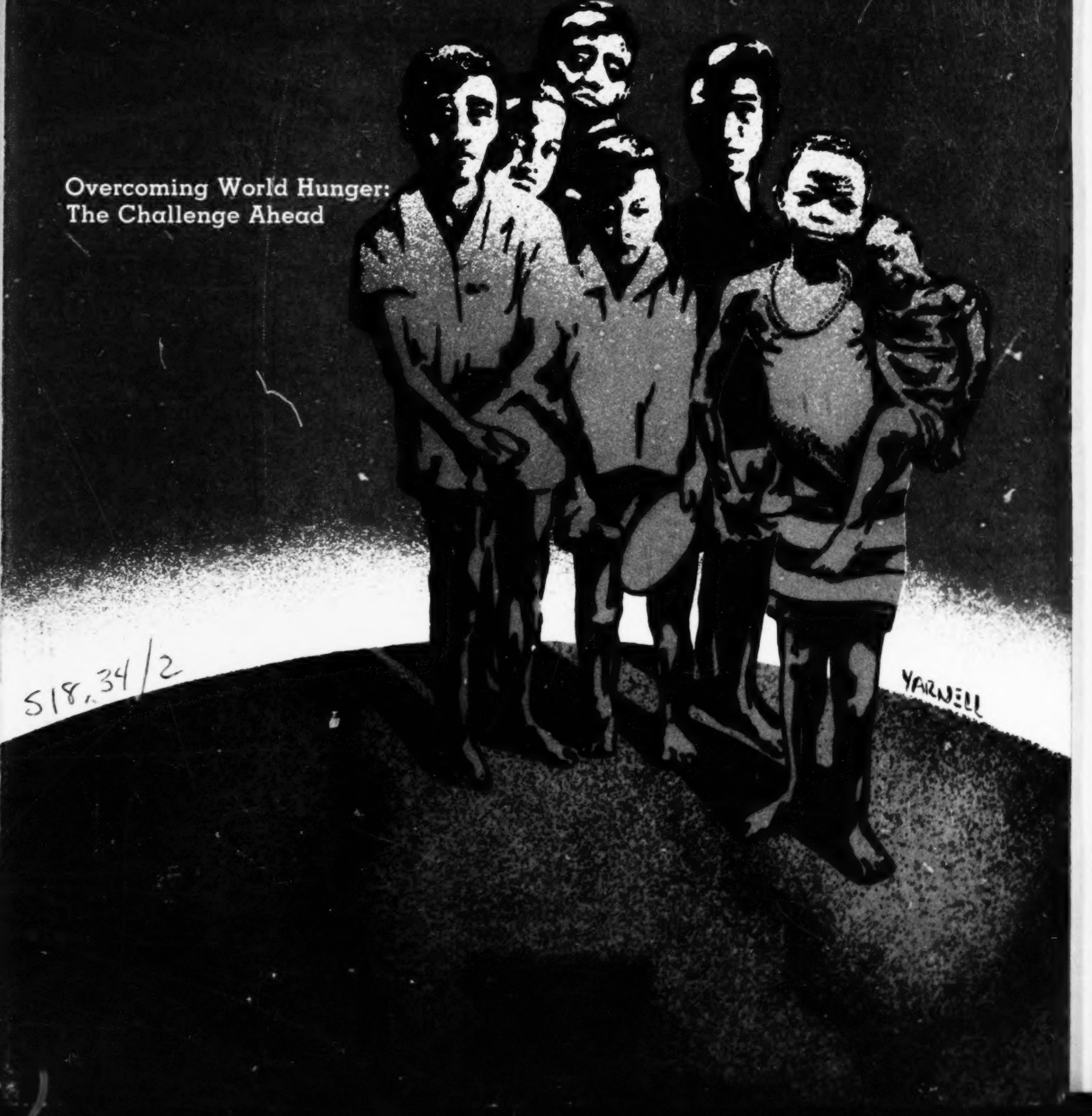
Overcoming World Hunger: The Challenge Ahead



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DEVELOPMENT UPDATE

A woman's lot (cont'd): 50% of the world's population is female; women constitute 28% of the labor force, receive 10% of the world's income, possess less than 1% of the world's wealth and comprise 75% of the world's 800 million illiterates.

The United States is a have-not nation when it comes to certain critical metals, says Harry J. Gray, chairman of United Technologies Corp. "From 1950 to the present, our raw materials situation has deteriorated drastically. We have never been self-sufficient and today we are frighteningly vulnerable to overseas producers." The *Journal of Commerce* quotes him as saying: "Of immediate concern are the supplies of cobalt and titanium, both of which are used heavily in the production of commercial and military aircraft . . ."

The Christian Church in Africa: "Today—despite great obstacles created by Marxist governments and repressive presidents—the Christian church, some observers believe, has become perhaps the most powerful institution in sub-Saharan Africa." Writing in the *Los Angeles Times*, David Lamb says: " . . . Christianity in Africa is growing so fast that by the year 2000 the continent may have the greatest concentration of Christians in the world. Their current strength: 190 million.

One man's opinion: "There is hardly any future for multinationals in developing countries. That little party is over. Those countries have debts of $300 billion and 60% of it comes due by 1982." So says J. Peter Grace, boss of W.R. Grace & Co., a $5 billion conglomerate. Grace has taken his company out of Latin American shipping, airlines and banking.

How to conquer hunger in the Third World? Orville Freeman, former secretary of agriculture, says that if the hour of deliverance is to arrive for the world's hungry people, the following ingredients must be incorporated into poor countries' rural development mix: land reform, including supporting services to provide incentives for producers; sensible pricing policies if small producers are to be expected to risk their families' future on new technology; broadly based community involvement; irrigation; population control; organizing women in village communities; and basic to everything, political leadership with courage, commitment and follow-through.

Family planning has been approved by 12 African countries with large Islamic populations and high birth rates. According to the *New York Times*, the governments of Cameroon, Gambia, Ghana, Guinea, Liberia, Mali, Morocco, Nigeria, Senegal, Sierra Leone, Upper Volta and Zaire have agreed that the Islamic religion does not oppose family planning and have called on Moslem leaders to encourage family planning for the promotion of maternal and child health.

A call for greater North-South trade: "If trade among the countries of the European Community has been such a success and has served the interests of all parties concerned, it is because one can trade more and in a better way with a partner who is able to pay," wrote Gaston Thorn, foreign minister of Luxembourg, recently. "In order for us to reach a new market, new buyers in the world—and there are billions of such potential buyers, who have real needs which we can no longer find in Western Europe—we have to give them in the first place the means to take off. What is required of us is, literally speaking, an investment—but one without the usury rates which we presently have now."

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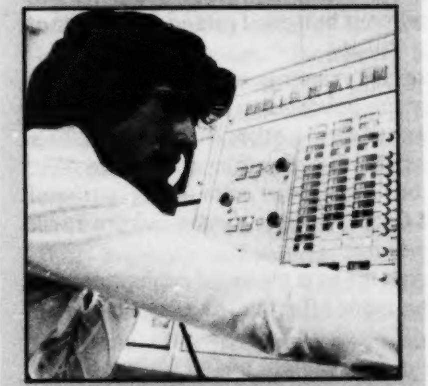

Cover: World hunger, a stubborn foe. The Presidential Commission on World Hunger has concluded that a food crisis, more serious than the energy crisis, could develop over the next few decades. In many parts of the world, especially Africa and Southeast Asia, that crisis is now. See articles on pages 2-12.

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Douglas J. Bennet Jr., Administrator
James W. McCulla, Director
Office of Public Affairs

Press and Publications Division,
Office of Public Affairs
Agency for International Development
Washington, DC 20523
(202) 632-8351

Edward R. Caplan, Division Chief
Lee Mullane, Editor

Overcoming World

A report of the Presidential Commission on World Hunger.

The report of the Presidential Commission on World Hunger represents a challenge to all Americans. I commend the members of the commission for their comprehensive analysis and thoughtful proposals.

As Chairman Sol Linowitz has noted, few of the measures recommended by the commission will be easy, and many of the most important will take time. Some will be difficult to implement quickly in the face of fiscal restraints imposed by our fight against inflation. But I agree with the commission that our national security and our fundamental values compel us to mount a growing effort to build a world without hunger. I intend to make that effort.

I have today directed the appropriate departments and agencies of the federal government to examine promptly the commission's proposals and to recommend to me both immediate and longer term action. The commission's report will be a spur to new achievement; it will not gather dust in the files.

I intend to share the commission's basic message with other national leaders in June at the Economic Summit Conference in Venice, where I will make specific proposals for collective action.

I urge Congress and all Americans to join me in a renewed commitment to mobilize the world's resources in a larger, more effective, and continuing effort to overcome world hunger.

—President of the United States
Jimmy Carter

The Presidential Commission on World Hunger has called upon the United States to make the "elimination of hunger the primary focus of its relationship with developing countries." The commission concludes that a food crisis, more serious than the present energy crisis, could develop over the next few decades. The commission's final report, containing 32 major recommendations, proposes both long-term and short-term programs to alleviate hunger.

The Commission was established in September 1978 to analyze the causes of world hunger, evaluate U.S. programs to end hunger, and recommend changes in U.S. programs and policies. Scheduled to conclude its activities June 30, the commission is required to inform the

Hunger: The Challenge Ahead

American public about hunger issues.

Regarding the recommendations, Chairman Sol Linowitz notes that "few are easy; some of the most important will take time and many will require short-term economic sacrifices and adjustments that will be especially hard to achieve in terms of inflation, rising energy costs and international crises." However, he states, "U.S. actions to alleviate world hunger must be accorded status equal to the actions needed to safeguard other aspects of our national security."

The Commission calls for actions that support self-reliant development for all countries. Citing international trade and finance as key elements, the commission recommends more flexible trade arrangements with developing countries and forgiveness of concessional debts of the poorest countries.

Noting that the world food situation is still precarious, even after several years of good harvests, the commission states that ensuring world food security must be an objective of highest priority for the United States and other food-exporting countries. As the world's principal grain producer and exporter, the United States has a special responsibility to stabilize world food prices and ensure adequate food supplies.

The commission calls for new negotiations to establish an international system of grain reserves, a U.S. emergency wheat reserve to guarantee U.S. food aid shipments, support of food reserves in developing countries and improved U.S. government policies to strengthen the U.S. agricultural system.

The commission calls for better organization of the U.S. foreign aid program, a substantial increase in U.S. financial support for development assistance programs and a complete rewriting of the PL 480 Food for Peace program.

The commission calls for an improved exchange of information between developing countries and corporate investors, and recommends a presidential meeting with American agribusiness leaders.

In addition, the commission has recommended several actions to President Carter aimed at reducing domestic hunger and poverty. The report also calls for continuing support to domestic food programs and for a national development policy to foster balanced economic growth and full employment in the United States.

On international trade, the commission recommends that:

- The United States support international negotiations to establish global commodity agreements to stabilize the export prices for such developing country products as copper, cotton and tea.
- The United States call for new multilateral trade negotiations to reduce tariffs on developing country manufactured goods exports to Western markets.
- The United States extend "duty free" treatment to developing country exports to the U.S. market under the U.S. Generalized System of Preference (GSP).
- The United States act to reduce the burden of international debt on the world's poorest countries.
- The U.S. Congress expedite federal assistance to American industries particularly vulnerable to competition from developing countries.

On corporate involvement, the commission recommends that:

- A non-governmental clearinghouse be established to encourage the exchange of information and personnel between developing countries and U.S. investors.
- The United States support current United Nations efforts to prescribe standards for investment on the part of international corporations and the developing countries.
- The president call a meeting of

Children in El Salvador are assured a balanced meal, thanks to a feeding program.

major corporate and agribusiness leaders to encourage industry representatives to provide their suggestions on ways American businesses can help in encouraging self-reliant growth and the elimination of world hunger.

On world food security, that:

- The United States strongly support efforts to establish an international system of grain reserves to provide stability of prices and ensure ample food supplies when world production is low.
- The United States establish an emergency wheat reserve to guarantee adequate supplies for the U.S. food aid program.
- The U.S. farm policy give greater emphasis to the conservation of soil and water resources and to coordinated policies supporting small- and medium-scale farms and the continued productivity of American agriculture.

On development assistance, the commission stated:

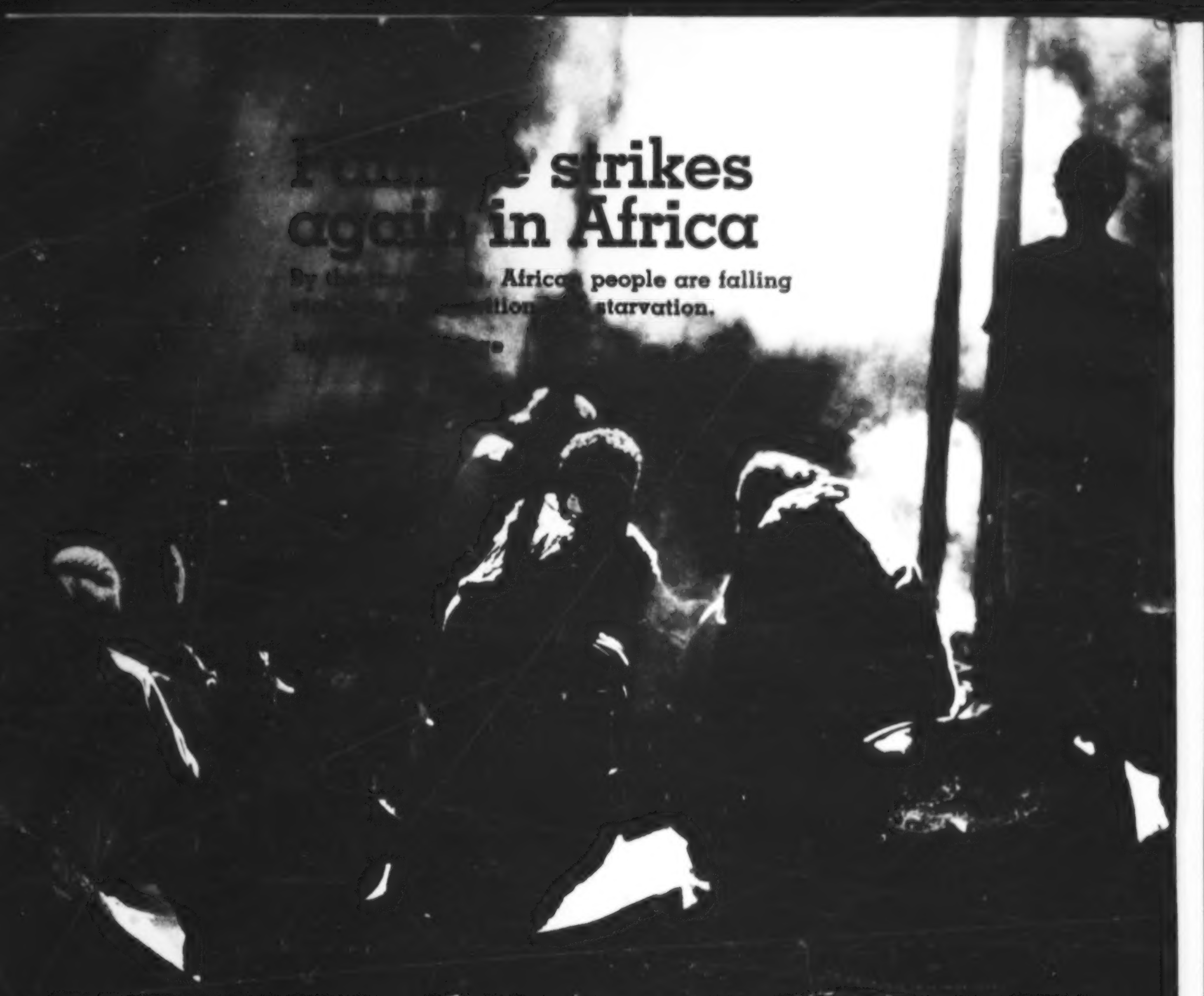
The commission's review of U.S. bilateral development programs and American participation in multilateral development organizations has shown that economic development objectives can be compromised by considerations of foreign policy and pressure from domestic interest groups. A narrow concept of national security, seen simply as military superiority, frequently conflicts with long-range economic development goals. Also, the dispersion of authority for development-related programs throughout the federal government is a continuing problem.

Inadequate funding of overseas development programs has also reduced the effectiveness of U.S. aid activities. After World War II, the United States stood out among donor nations by virtue of the size of its contribution and the high quality of its technical assistance. However, this nation's relative share of worldwide development assistance has been declining sharply over the past 20 years. Although the United States still gives more development assistance, in absolute terms, than any other donor, the United States ranks behind 12 other Western donors of foreign assistance when that sum is expressed as a percentage of Gross National Product.

The commission believes that economic development policy must become an integral component of U.S. national security policy, in order to assure that development assistance programs receive the priority and economic backing required to make them truly effective. Improving the organization of U.S. foreign assistance programs, augmenting their funding and ensuring that these funds are effectively utilized will greatly improve the ability of the United States to assist in the elimination of world hunger.

Therefore, the commission recommends that:

- The International Development Cooperation Agency be significantly strengthened and that its director be accorded cabinet-level status, so that the objectives of ending hunger and promoting equitable economic development can be more effectively integrated into U.S. foreign policy and planning.
- The United States move as rapidly as possible toward the United Nation's goal of 0.7% of Gross National Product as this nation's net disbursement of concessional development assistance.
- The Agency for International Development (AID) give greater emphasis to nutrition and employment generating programs as an integrating theme for its program activities in agriculture, health care, education and housing.
- The congress undertake a complete revision of the PL 480 Food for Peace program to give priority to its developmental objectives. ☐



Famine strikes again in Africa

By th[illegible], African people are falling vi[illegible]tion[illegible] starvation.

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In sub-Saharan Africa more people suffer from malnutrition than do not.

Mauritania, Chad and Cape Verde face acute food shortages. Uganda, Mozambique, Tanzania, Kenya and Zambia are having difficulty producing food, and serious balance-of-payment problems have forced their leaders to seek massive foreign food assistance. Only Nigeria, Ivory Coast and Cameroon have sustained the steady rate of economic growth necessary to underwrite their countries' rising food production and food import bills, according to a recent report by the United Nations Food and Agriculture Organization.

Analyzing the past 15 years shows that all the major developing regions have pushed up their per capita food production levels by 15%, except Africa, where per capita food production dipped by 10%. For the near future at least, the rate at which African nations can produce cereal is expected to lag behind population growth. And, according to development officials, the situation won't get better without significant outside assistance.

Africa's food shortage, fast becoming the most serious in the world, stems from a number of problems: drought, poor transportation, minimal price incentives and the political turmoil that has swept many parts of the continent. Moreover, the growing number of refugees and displaced persons made homeless by wars—estimated at 2-4 million—has increased the pressure on resources, particularly in Somalia, Sudan, Zambia, Chad and Mozambique.

Worldwide, nearly a billion people face some degree of malnutrition. Although total food production in developing countries has climbed steadily since 1970, it has not kept pace with population growth, the FAO suggests. One out of every eight men, women and children live in food-short areas of the world. "Although output in the developing countries was only 1% less than the 1978 record high, rapid population growth resulted in at least a 3.5% drop in per capita production."

For some 300,000 people in the

Karamoja region of Uganda, that statistic translates into starvation. Fighting, plus a lower than normal rainfall, has reaped disaster on agricultural production in the country. So serious is Uganda's problem that the United Nations Development Program (UNDP) is planning to airlift emergency corn from Ethiopia. The United States is financing the airlift, and plans to ship 16,500 tons of corn by road from Mombasa, Kenya, this spring.

Zambia's 5.6 million people will be eating yellow American corn this year, instead of their own variety of white corn as 102,300 tons of U.S. Food for Peace will begin arriving in Zambia, hopefully in time to avert the major famine projected for June and July. The Zambian government has projected a 220,000 ton shortfall in its corn crop this year. Zambia faces the added burden of trying to move the emergency shipments through already congested ports in Tanzania and Mozambique. Distributing the corn within the country also will be difficult because bombing attacks during the recent civil war wiped out 15 bridges connecting major roads. Zambia's food problem has steadily worsened over the past two years as drought has persisted, market prices have dipped, and delays in shipping fertilizer have dragged on.

But of all nations in Africa, Somalia probably faces the worst crisis. The constant flow of refugees from the Ogaden region of Ethiopia has swelled the camps to nearly 700,000, with an additional 500,000 displaced persons flooding urban centers. The United States has shipped 61,930 tons of food and large quantities of medical supplies, blankets and other essentials.

Since the early 1970s, the United States and other donors have funded food production in order to reduce the region's vulnerability to drought. This year, the Sahel region of West Africa appears much better off than in previous years. Mauritania, Chad and Cape Verde, however, have reported emergencies.

Civil strife rages on in Chad, disrupting farming; erratic rainfall last year led to a food shortage of 32,450 tons. Trouble areas such as Kanem, Lac and Longone Valley are reporting unusually high death rates among children who, because of malnutrition, are falling victim to disease. In an effort to help the people of Chad, AID has begun shipping sorghum and corn some of which is to feed Chadian refugees in Cameroon.

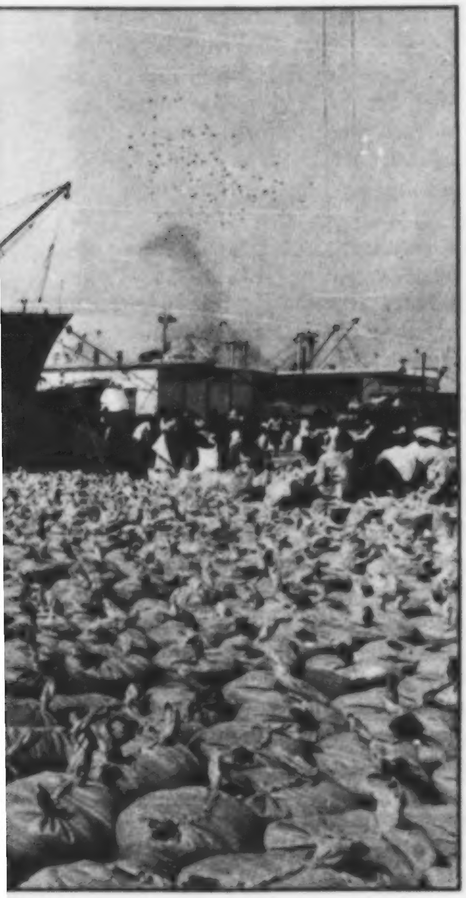
Mauritania has practically no fertile land—certainly not enough to feed its 1.5 million people. Mauritania depends on food brought from other countries with income earned from northern mineral mines. The Polsario War spilling from neighboring Spanish Sahara into the mining areas is depleting the precious revenues needed for food. Last December an early warning from a multidonor mission put Mauritania's food needs at 86,900 tons. Despite quick response from Canada, the European Economic Community, Holland, France, Turkey, West Germany and the United States, the country still faces a food shortage of 49,500 tons.

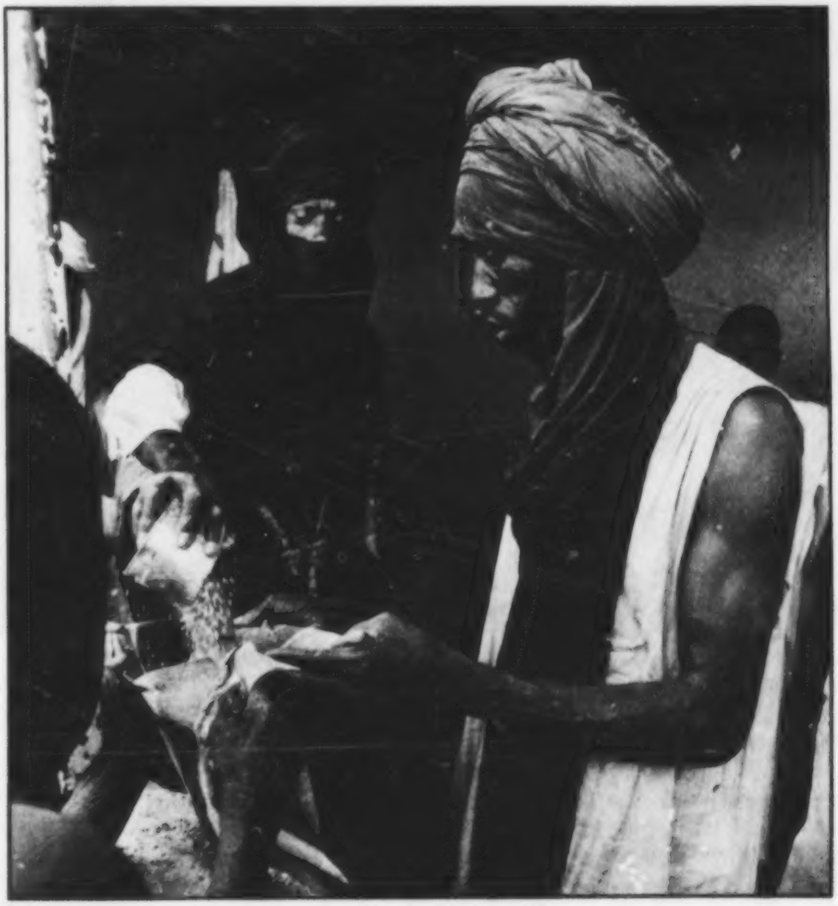
Agricultural production on Cape Verde satisfied only about 5% of the country's food needs. Despite help from foreign donors in developing irrigation systems and soil conservation, the country is faced with corn and bean shortages of 13,750 tons. Serious balance-of-payment problems have forced the government to seek foreign food aid.

Tanzanian officials are faced with widespread rice and wheat shortages in cities and a lack of corn in the rural areas, all due to the drought now sweeping over most of

East Africa. What grains have grown have been devoured by quelea birds—pests whose numbers have reached alarming proportions. To make matters still worse, a national fuel and spare parts crunch has hamstrung transportation. As a result, Tanzania needs 78,100 tons of food if it is going to avoid famine. The United States has provided 30,800 tons of rice and is considering a new request for additional food.

"The situation in Africa looks grim," said Susan Schayes of the U.S. Department of Agriculture, who has been assessing the situation in east and southern Africa. "Kenya, Tanzania and Malawi were exporting grain until they realized earlier this year that they didn't have enough food for their own people to eat. It is a question of keeping data on what you have and what you





Clockwise from top: Africa's food shortages and the suffering of its people stem largely from drought, poor transportation and political turmoil. Many countries need massive food donations. The United States and other Western nations are responding: shipments of grain are bagged at dockside in Senegal.

need. That's why every agreement we (USDA) have will carry a statement that countries are to keep adequate data on their food situations.

"The second biggest problem is that seed, fertilizers, hand tools and agricultural credit are not getting to rural people. We are trying with our commodity import loans to get those things to the people. Third, farmers can't get good prices for their crops and therefore have no incentive to grow more. Finally, the other thing (that must be done) is to improve the road structures to get the produce to market."

Schayes says that in the countryside, people can get by in some cases by scavenging and changing their eating habits, "but you can't do that in the cities."

Africa's food problems are chronic. Unchecked population growth and inconsistent food production will probably push Africa's need for imported grain to 18.7 million tons by 1990, if domestic food production follows historic rates of increase, the FAO report predicts. Any slight increase in per capita income could push the need for food imports as high as 29.7 million tons by 1990. (Asia may need as much as 55 million tons for the same period.)

The United States will not be able to fill all the food requests from African countries, but can provide grain to countries "where we can identify critical needs," according to Cheryl Christensen, Africa branch chief for USDA.

"The constraint is one of financing rather than one of supply. These countries simply have problems paying for food imports. Unless there is significant improvement in domestic production of food in Africa, the requirements will grow dramatically in countries that won't be able to pay for them. Nigeria, Ivory Coast and Cameroon are the exceptions rather than the rule.

"In Africa, there is so little nonhuman labor devoted to agricultural production," she added. "Most of it is devoted to subsistence farming. Unlike Southern Asia, you don't have large numbers of landless laborers in rural areas." According to 1979 figures by FAO and USDA, Africa is importing grain at a rate of 9 million tons a year.

For the most part, low income countries in Africa, like their counterparts in the Caribbean and Asia, produce only one important food crop each and that crop—usually coffee, sugar, cocoa, bananas or cotton—serves as the major source of foreign exchange.

Elsewhere in the world, Bolivia, Ecuador, Guyana, Nicaragua, and Peru are having trouble importing enough food to offset production deficits. In the Caribbean, international food agencies are watching Haiti and Jamaica. Cambodia, Laos and Vietnam in Southeast Asia continue to suffer with political upheavals. Heavily populated nations, including India, Pakistan, and Bangladesh face chronic shortages.

The United States, under its Food for Peace programs, has provided over $237 million, or 952,600 tons, in food aid to Africa this fiscal year. In addition, AID provided $113 million for agriculture, rural development and nutrition projects in 38 African countries. AID has asked Congress to provide $147 million for these activities for Fiscal Year 1981. On a global basis, AID has provided $614 million for this fiscal year and has requested $729 million for the next year. ☐

Emmett George is a public information officer in AID's Office of Public Affairs.

Women in Niger pound millet, a food staple, in the traditional manner.

FOOD FOR ALL: No. 1 Priority

The right to have enough to eat is a basic human right.

by Frances Brigham Johnson

Hunger and malnutrition are becoming pivotal issues for national leaders and developers who want to chart enduring courses to national growth and progress. More and more leaders are recognizing that material change will be fleeting if made at a cost of neglecting or ignoring pervasive malnutrition. The World Bank estimates that some 800 million people in developing countries are not able to feed themselves even minimally.

While famine and starvation in Nigeria, the African Sahel countries, Bangladesh and Cambodia have seized world headlines, widespread chronic malnutrition is far more devastating. Malnutrition shortens life, stunts physical growth and harms the alertness of at least one out of eight men, women and children on earth. Yet, strange as it seems, most of the people who are hungry and malnourished today would still be missing the food they need if food production were to double next year.

Development leaders are now recognizing that the heart of the malnutrition and hunger problem is not food production alone, but poverty. Accordingly, developers are at last focusing on what must be done to put hungry people in control of the daily food they need. They are recognizing

In order to feed their people, developing countries must set national strategies for food production, marketing and distribution, and nutrition education.

that the task calls for political as well as technical solutions.

Realizing that the food supply issue is central, the Presidential Commission on World Hunger, which recently wrapped up a two-year study, has recommended that *eliminating* hunger be made the primary focus of U.S. relationships with developing countries. This will mean a shift in U.S. policy on a number of fronts, and will include changes in trade relations, foreign investment and foreign affairs.

For AID the shift will mean assigning more weight to nutrition and national food supply as integrating themes for development programs and projects in agriculture, health care, education and family planning. AID missions already are talking with developing countries about forging development strategies based on growth with equity. AID in particular has been working for some time with developing countries to establish national nutrition strategies that link agricultural production and planning with ways to alleviate malnutrition.

Beyond its technical assistance and PL 480 (food aid) activities, AID more recently has been developing a comprehensive approach for *eliminating* hunger. This approach represents a response to the presidential commission's call for accelerated efforts to assure *adequate diets for all.* That is, AID has been grappling with finding ways for each household to grow enough food or earn enough money to feed itself adequately.

AID may provide professional consultants to Third World governments to help develop national food strategies. Policy makers will consider ways to increase food production, to improve marketing, food distribution and nutrition intervention; and to set ground rules for trade and investment. International teams made up of experts from developed nations and country planning groups will use existing data and material so that the first strategy—food—can be prepared fairly rapidly.

It is expected that the food strategy will stimulate concerted effort by all concerned government agencies, aid agencies and producers, processors and distributors of food. The food strategy, once set forth, will need an institutional base—where it will be improved and refined as time goes on.

While most countries have the basic structure to formulate and support a food strategy, they have not tied together food-nutrition policy and projects as a consistent whole. It is expected that the food strategies will take into account a variety of factors that affect food supply, such as macro-economic policies governing household incomes, employment, prices, subsidies, and amounts of food available to consumers.

There is another approach to meeting hunger head-on. It is under scrutiny by development officials. Known as the "Tucson Model," it is dependent upon the developing country's adopting specific steps to attack its hunger problem.

The Tucson Model grew out of a meeting two years ago in Tucson, AZ, the Conference on Women and Food sponsored by AID.

According to the strategy, the developing country first must organize indigenous centers that can continuously assess and monitor hunger, and work to get government policies initiated or revised so that food production, processing and marketing actually result in more food for people. Second, the developing country must make credit, marketing storage and information facilities available to more small farmers, herders and entrepreneurs. Third, the country must install selected systems, such as feeder roads, water supply systems and central storage, where such improvements would boost food or the incomes of people facing food shortages. Before hunger can be eliminated, developing countries must acknowledge two realities: that all people are entitled to food at costs within their means and that national leaderships must be willing to make adequate, daily food for all people a national goal.

In suggesting how the Tucson Model should be applied, Ray A. Goldberg, Moffett professor of agriculture and business at the Harvard Business School, stresses the necessity of active market development and commodity systems. According to the Tucson Model, on-going, in-country forums on food supply in capital cities, provincial centers, villages and schools will be needed to build political will for *food for all*. In these settings local people can look at the whole range of possibilities open to them. They can send their message to governors and ministries. Knowing what the people want to do to increase food supplies, developing country officials are apt to respond positively. While, under the Tucson Model, country analytic groups and policy makers can draw upon foreign consultants and technology, primary impetus for resolving hunger and income issues and for deciding what is to be done and who is to do it will come from local enterprise, reinforced by public policies and basic services.

The challenge will be to help poor countries find their own way to end hunger.

To implement the Model, AID must be ready to enlist the know-how of U.S. universities, business and voluntary agencies. Private sector knowledge and experience could be of great help in finding the solution to hunger.

AID's approach, growing out of work with the World Food Council and with a consortium of western U.S. universities, squares with the presidential commission's thinking that the solution to the economic riddle rests upon an accurate appraisal and determined attack on the sources of hunger.

Since the gap between income and expenses for food is a basic measure of poverty and hunger, the commission concludes that the most important task is to close the gap through policies that enable individuals and families to become self-supporting.

Given the view of the presidential commission that the United States has a special responsibility to lead the campaign against hunger, AID will be looked upon as leader in working with Third World countries in this regard. Since the United States is the most powerful member of the world's interdependent food systems, AID could play a critical role as counselor to U.S. agencies on trade and investment policy, credit, debt, and other issues that help determine whether poor people in poor countries will be able to feed themselves. And foreign aid, properly directed, can build strong customers abroad. From $6 billion in 1969, farm exports grew to $30 billion in 1978. For every ton of food assistance shipped, more than 20 tons are shipped for cash, an important fact for our balance of payments. Now one-third of all U.S. exports are shipped to Third World countries. As these countries strengthen their economies, they buy more American products, including agricultural products that can improve nutrition levels.

The presidential commission points out that by focusing international efforts on elimination of hunger, the United States can demonstrate a renewed dedication to the cause of human rights. For whether one speaks of human rights or basic human needs, the right to food is the most basic of all rights. Malnutrition kills—by making the victim more vulnerable to infectious diseases. Often deaths from gastrointestinal and respiratory diseases are actually the work of malnutrition.

For AID the challenge will be to help developing countries discover an attainable path for eliminating hunger. The commission recognizes that many long-range programs of hard work will be required. However, the commission concludes: "The worst aspects of hunger and malnutrition can be overcome even before more far-reaching development programs have become fully effective." The commissioners believe, and AID can demonstrate, that the outcome of the war on hunger by the year 2000 will be determined by decisions and actions well within the capability of nations and people working individually and together. Indeed, world order depends on it. ☐

Frances Brigham Johnson is AID's desk officer for Senegal. She was AID manager of the "International Conference on Women and Food," at the University of Arizona in 1978.

Food or fuel: The bittersweet choice

The stage is set for competition between auto-owners and the hungry poor.

by Lester Brown

The price of oil may soon set the price of food. As countries turn to alcohol distilled from agricultural commodities as a source of fuel for automobiles, more and more farmers will have a choice of producing food for people or fuel for automobiles.

The stage is set for direct competition between the affluent minority, who own the world's automobiles, and the poorest segments of humanity, for whom getting enough food to stay alive is already a struggle. Using food crops to produce alcohol will underline the global disparities in income as perhaps nothing else has.

Alcohol can be produced from a variety of plant materials. Ethanol, the most attractive short-run alternative to gasoline in the 80s, is produced from the fermentation of sugar crops, mainly cassava; and all the major cereals, especially corn and wheat.

Brazil, the world leader in alcohol fuel production, may be the first to feel the impact of energy crops programs on food prices. Plagued by a mounting oil import bill, in 1975 Brazil initiated its alcohol fuel program, based largely on sugarcane. By 1979 alcohol accounted for an estimated 14% of the country's automotive fuel consumption and in 1980 it is expected to constitute 20%.

The United States also has ambitious hopes for alcohol fuel. For the mid-eighties the Administration's ethanol goal is two billion gallons—roughly 2% of gasoline consumption. Mixed with gasoline, this would yield 20 billion gallons of gasohol, or nearly one-fifth the U.S. consumption of automotive fuel in 1979. Rising gasoline prices, gasohol tax exemptions, and federal loans and loan guarantees are all expected to increase alcohol fuel production.

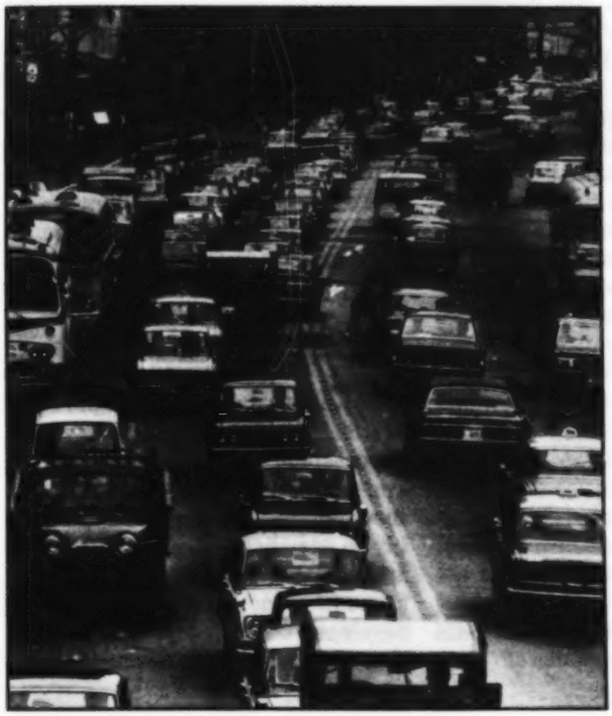
Other food exporters, including Australia, New Zealand, and South Africa, have either launched or are seriously considering large alcohol fuel programs. All these countries see the production of ethanol as a way to reduce their dependence on imported oil.

The U.S. alcohol fuel program is primarily based on the use of corn, and Australia is using wheat in its pilot project. These plans to divert food crops to the production of fuel come at a time when efforts to raise food consumption among the world's poor are losing momentum. Even without the competition from energy crops, the world will be hard pressed to avoid a decline in per capita food production during the decade ahead.

Ethanol, probably the best alternative to gas in the 80s is produced from sugar and root crops and all major cereals.

Providing food for the average person in the Third World takes roughly one-quarter of an acre of cropland per year, whereas a more affluent consumer requires nearly an acre. By comparison, running a typical American automobile entirely on ethanol from grain at the average world yield would require almost eight acres. Even widespread use of gasohol, which is 10% ethanol and 90% gasoline, would still double the annual claim of an affluent North American on the world's cropland.

If cropland is shifted to the production of fuel for automobiles, it will come at the expense of grain for export. Reaching the U.S. annual production goal of two billion gallons of ethanol by the mid-eighties would require 20 million tons of corn or its equivalent—one-



If cropland is shifted to automobile fuel production, it may well spell disaster for poor nations dependent on food aid.

fifth of the curent exportable U.S. grain surplus. In the absence of surplus production capacity, the U.S. agricultural fuel program will affect directly the price and availability of grain for scores of food-importing countries.

As the phased decontrol of oil prices proceeds in the United States over the next 18 months, the price of gasoline may well be approaching $3 a gallon by the end of 1981, a level that will enable distillers to pay even higher prices for the grain they use. As energy crops become more profitable, their production will expand until an economic equilibrium is reached between the price of agricultural commodities used for distillery feed-stocks and those used for food.

When a government's goal is to reduce oil imports, alternative measures to achieve the same end deserve to be examined. Relatively modest improvements in mass transit, for example, could markedly reduce dependence on automobiles in urban areas. Within the United States, the use of manual rather than automatic transmissions in all new automobiles would save more fuel by the mid-eighties than the ambitious alcohol fuel program is expected to yield.

For food-surplus countries buffeted by soaring oil prices and possible supply disruptions, the prospect of producing automotive fuel from crops is attractive. For food-importing countries, such a shift could be disastrous. To minimize the adverse effects of the alcohol fuel programs already launched, the governments involved should warn food-short countries of the potential reduction in exportable food surpluses so their agriculture and population policies can be adjusted. A global monitoring system that would assess the impact of energy crops initiatives on food prices would be an invaluable aid to political leaders.

A carefully designed alcohol fuel program could support food production rather than undermine it. Giving farmers first priority in the use of ethanol for tractors, farm trucks, and irrigation pumps would help ensure future food supplies when oil supplies begin to dwindle.

Agricultural wastes, food industry by-products, and cellulosic materials such as corn stalks could become important and renewable sources of fuel—alcohol fuel. The issue is whether governments can encourage the production of alcohol fuel without inadvertently launching an industry that competes directly with food production.

In a world that no longer has any excess food production capacity, the decision to channel foodstuffs into the production of automotive fuel should not be taken lightly, for it will inevitably drive food prices upward. For the world's affluent, such price increases may lead to belt tightening; but for the several hundred million who are already spending most of their meager incomes on food, continually rising food prices will further narrow the thin margin of survival. □

Lester Brown is president of Worldwatch Institute, an independent non-profit research organization in Washington, DC. His study, "Food or Fuel: New Competition for the World's Cropland," was recently released.

Taking the risk out of farming

Crop credit insurance could help farmer and banker alike.

by Susan Super

Take some of the risk out of farming but boost crop production at the same time—that's what many of AID's agricultural projects throughout the world are trying to do. Some of the means to this end are irrigation, pest control, high-yield crop strains, fertilizer and soil conservation. But there are limits to what these physical remedies can do.

Frequently, Third World farmers cannot get the credit they need to buy new products or to invest in improved methods, because banks and other lenders regard them as poor risks. Moreover, the farmers often are reluctant to try new ideas—and risk a crop failure. With little or nothing to fall back on, small farmers cannot afford heavy debts as they have too much to lose: their ability to feed their families, perhaps even their land.

It's a vicious circle. The subsistence farmer can't afford to take the risks, but can't afford not to.

Crop credit insurance could help farmer and banker alike. AID is testing the value of this approach through pilot programs in Panama, Bolivia and Ecuador. Project adviser Nelson Maurice maintains that this type of insurance system should make banks more willing to extend credit to small farmers, the farmers more receptive to trying new ideas, the economy healthier and agriculture more productive. Maurice, the coordinator for foreign programs at the Federal Crop Insurance Corp. of the U.S. Department of Agriculture, is assigned part-time to AID's Latin America bureau to help set up the pilot programs. Some of the work began in 1978, he notes, and the project is funded for five years to allow time to study the economic, social and agricultural impacts and to iron out the problems inevitable with a new system.

AID has obligated about $4 million to cover administration and technical assistance, while the governments of Panama, Bolivia and Ecuador will contribute up to three times as much by underwriting reimbursements for excessive crop losses that might occur. Farmers also will pay on insurance premiums.

"Crop credit is a relatively new type of agricultural insurance geared directly toward the needs of developing countries," Maurice explains. Unlike other forms of crop insurance, which reimburse farmers directly for all or some crops losses, crop credit insurance first pays off loans from banks or other lending institutions when a farmer cannot afford the payments because of crop damage. Farmers also receive some cash assistance.

"Crop credit insurance is not an attempt to guarantee farmers' income directly," he says, "but a way to increase and stabilize income by encouraging better farming practices and choice of crops and by assuring farmers' credit-carrying capacity and the solvency of lenders."

Governments have been operating all-risk crop insurance programs successfully since 1938, when Japan and then the United States started the first modern programs, according to Maurice. "Today, more than 20 countries have programs, but the successful ones are concentrated in developed countries where the large size of farms and different types of financing limit their usefulness as models for developing countries." Mexico is the exception, with a crop credit insurance system (referred to there as "investment insurance") started in 1961 that Maurice reports "has achieved a degree of success and contributed to the development of the nation. It's a relevant example in many ways for other developing countries, although care must be taken to develop programs suited to each country's situation."

Maurice's conversation with a group of farmers in Mexico (where half of the insured farmers work fewer than nine acres of land) shows the potential value of the insurance. "I asked them what they would do if crop credit insurance were not available," he relates, "and they gave me some answers I had expected: they would plant less land, not use credit, not use fertilizers and plant maize for consumption rather than as a cash crop." There also were some unexpected, but just as sincere, responses from the farmers who said that without the insurance "they might go to the United States as illegal immigrants, or plant marijuana and smuggle it into the States."

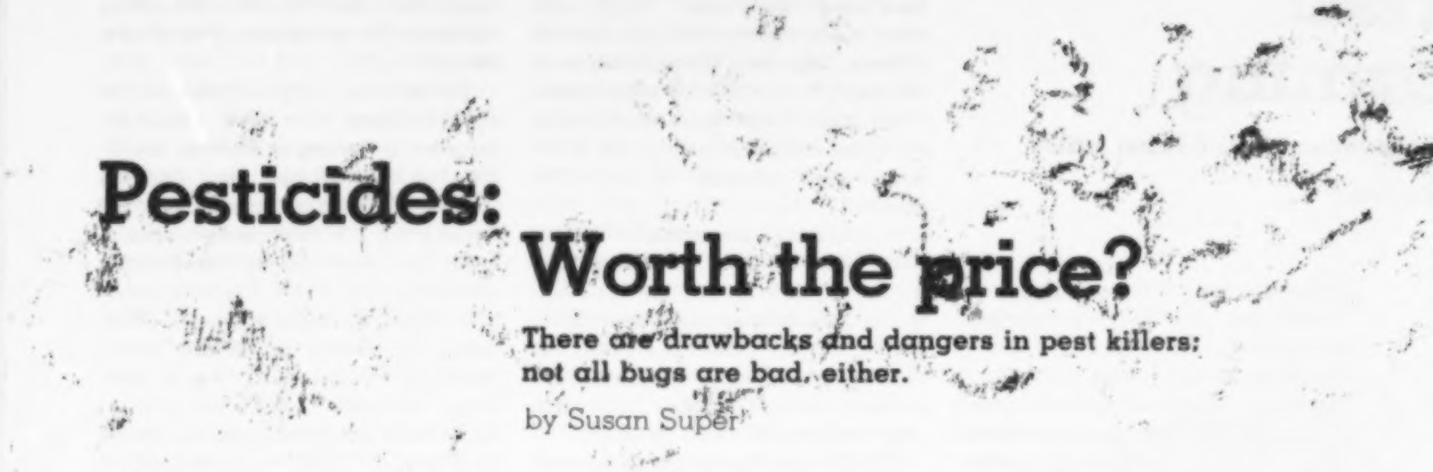
A Mexican government agency with some 2,000 employees administers the program, serving nearly 1 million farmers and insuring 40 crops and a quarter of all the cultivated land. Approximately 85% of these farmers have difficulty getting credit without the program.

Maurice maintains that a government subsidy is probably necessary, but can be justified because of the benefits.

Crop credit insurance is drawing increasing attention. Korea is starting a program, for example, and Venezuela is negotiating with the Inter-American Institute of Agricultural Science on setting up an insurance system. The institute also is the main contractor for AID's pilot programs, with responsibility for hiring and training local personnel in the three countries. The five-year pilot programs are intended to demonstrate how the crop credit insurance system works and to provide the economic research and analysis needed for deciding whether the programs should continue.

Ecuador recently announced the establishment of a crop credit insurance program; in Bolivia, an office has been set up ; and Panama has had a program under way for three years. "It takes several years, even 10, to get the system running smoothly and to see the rewards—increased agricultural production, better conditions for farmers and a more vital economy," Maurice cautions. "But even in three years, there have been some encouraging trends in Panama, such as a commercial tomato operation that began recently. A tomato canning plant has been built and the operators offered farmers a guaranteed purchase price. Having a crop credit insurance program, thus insuring the necessary production, helped make the lenders, farmers and suppliers more willing to take part in the venture." □

Susan Super is assistant editor of "Front Lines," AID's employee newspaper.



Pesticides: Worth the price?

There are drawbacks and dangers in pest killers; not all bugs are bad, either.

by Susan Super

Cheap and effective chemical agents introduced since World War II have produced spectacular results against pests—those unwanted, sometimes destructive, insects, weeds, microorganisms, rodents, birds and the like that threaten humanity's food supply and health.

Insecticides (DDT, for instance) got rid of insects that gobbled up or damaged crops or stored food. They also decimated populations of insects that carry disease, such as malaria, which at one point was successfully eradicated in 37 countries.

Herbicides, such as 2,4-D, boosted agricultural production by killing weeds that choke crops. In many countries, they gradually replaced hand labor and mechanical cultivation for weed control. Herbicides generally use less fossil fuel, cost less and avoid some of the soil problems (compaction, erosion, loss of moisture) that may accompany older methods.

Hundreds of new compounds have followed since the 1940s, as production of pesticides and dependence on them have mounted rapidly. Some $8.7 billion was spent worldwide on pesticides in 1978.

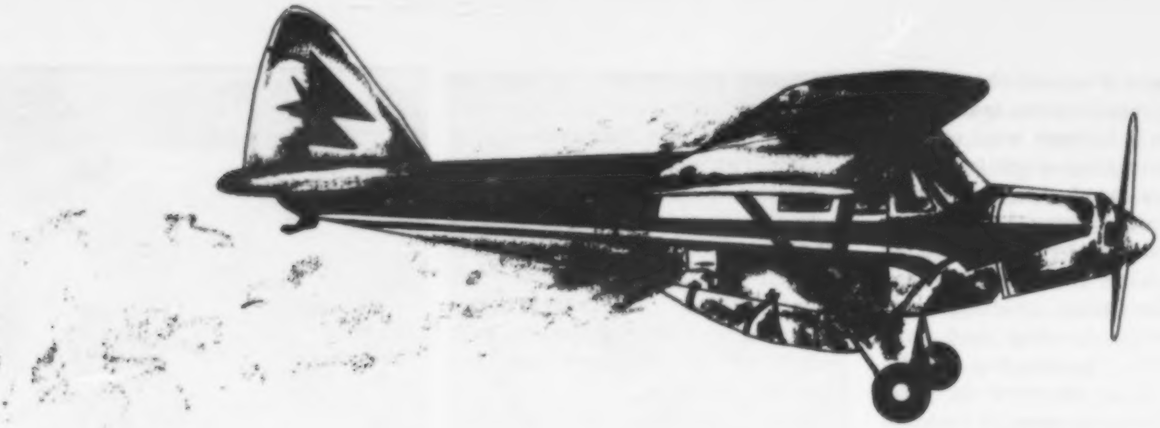
The United States (which accounts for one-third of the pesticides applied worldwide) in 1977 made 3,000 times the amount of synthetic organic pesticides as it produced in 1951 (1.4 billion pounds vs. 464,000), exporting about a third.

Pesticides are no longer cheap, adding to the financial burden on farmers throughout the world. An average 10% price increase for U.S. pesticides is expected in 1980. Since 1970, pesticide prices have gone up 54% in the United States, although the increase is much slower than other agricultural "inputs" (fertilizer, machinery, fuel, feed, seed) at 128%.

Money, however, is not the only price people pay for using pesticides, as concern has grown over dangers to public health and the environment. The World Health Organization estimates pesticide poisonings at 500,000 a year.

Harder to predict and deal with are the long-term hazards of chemical compounds. Residues may persist in the environment and the food chain for years without breaking down, contaminating water, meat and crops and sometimes building beyond acceptable levels in humans, fish and domestic and wild animals.

An overkill attitude toward pesti-



cide use in agriculture ("if a little is good, then a lot must be better") hastened the arrival of resistant pest strains. Thus, many pesticides are ineffective by the time they have been fully tested and certified for use in homes and in public health programs where people may be exposed to them 24 hours a day.

The Food and Agriculture Organization of the United Nations reported in 1977 that 364 insect varieties, including some important agricultural pests, had become resistant to pesticides—double the number 10 years before.

The resurgence of malaria in Asia, Africa and Latin America can be partly attributed to the evolution of mosquitoes resistant to DDT and other insecticides. WHO endorsed a massive campaign in 1955 to eradicate malaria by using DDT against mosquitoes, which dramatically cut the incidence of the disease. But as control programs lapsed or were carried out improperly, insects became resistant and malaria parasites unaffected by drugs appeared. WHO now advocates a malaria strategy using a mix of traditional and new controls, not only pesticides: eliminating mosquito habitat by measures such as filling, draining and cleaning ditches; biological controls, as in stocking ponds and streams with mosquito-eating fish; and new drugs and vaccines. Keeping a jump ahead of adaptable pests has often meant replacing a relatively safe, cheap compound with a pesticide that's expensive and more toxic, requiring complicated, costly safety measures.

Agricultural experts generally agree on the need for pesticides to protect food production and health, but insist on the additional need to control pesticides for the protection of people and the environment.

A recent Council on Environmental Quality report asserted that in spite of advances in chemical control and the 10-fold increase in chemical pesticides used on U.S. cropland during the past 30 years, annual crop losses from all pests appear to have remained constant, with a decline in losses caused by weeds but a doubling of losses to insects. One factor is the trend toward planting a single high-yield strain of a particular crop over a wide area, rather than a diversity of strains, so that losses are widespread if the strain is susceptible to pest attack.

What is the proper role of pesticides? Are there alternatives? Integrated pest management (IPM) is gaining ground as one way to assure stable crop production and control pests at a level where they do little economic damage, while minimizing hazards to human beings, animals, plants and the environment. President Carter's 1979 Environmental Message cited it as "a systems approach to reduce pest damage to tolerable levels through a variety of techniques, including natural predators and parasites, genetically resistant hosts, environmental modifications and, when necessary and appropriate, chemical pesticides. IPM strategies generally rely first upon biological defenses against pests before chemically altering the environment."

This approach could cut U.S. pesticide use by up to 75% on some crops, reduce losses to pests before harvest by 50% and result in significant savings for overall pest control, according to a study by the congressional Office of Technology Assessment.

Since 1971 the U.S. Department of Agriculture's Cooperative Extension Service has been demonstrating this approach on a variety of crops and cattle feedlots. For almost every crop trial in more than 30 states, pesticide use dropped sharply but yields and quality were maintained and profits to farmers went up.

Mosquito control districts in California have used integrated pest management for several years, cutting pesticide use by 90%, reducing costs for labor and material and almost eliminating environmental pollution while keeping good mosquito control. Encouraging results have also been reported for integrated pest management in forestry and urban uses.

AID and pesticides

Developing countries are a rapidly growing market for products to boost agricultural productivity, such as fertilizers and pesticides.

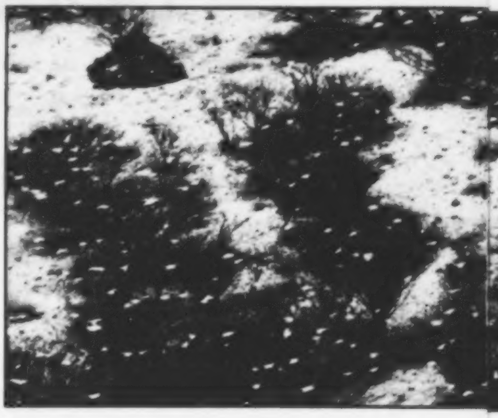
But conditions in the Third World pose serious drawbacks for the use of pesticides that potentially endanger people using them and crops. Because few people can read, or read well, directions frequently are not followed correctly; overuse of pesticides is a chronic problem, hastening the development of pests resistant to pesticides and thus lowering the chemicals' effectiveness for public health use; countries lacking adequate safeguards may import pesticides banned elsewhere; and pesticides considered safe in a country like the United States (where they are applied by trained, licensed applicators with sophisticated equipment and safeguards) may be hazardous in a developing country.

AID's official policies and procedures on pesticides (most recently revised in 1978) emphasize technical assistance and research to promote integrated pest management using all available tools, rather than relying solely on pesticides. Other controls in agriculture, for example, are crop rotation, timing of planting and harvesting, sanitation, cultivation, plant varieties resistant to pests, and use of predators, parasites and microorganisms that attack pests.

"There's been a radical change in the Agency's approach to pesticides in the last few years," observes Frederick Whittemore, environmental coordinator for the Agency's agriculture office. He acknowledges that "not everybody understands the reasons for the changes," which help the Agency act more responsibly. Except in emergencies, pesticides are no longer provided to countries under AID's Commodity Import Programs, but only for specific projects after the proposed uses are carefully reviewed.

Some 35 to 40 requests from missions for agricultural pesticides have been reviewed in the last two years under AID's environmental review procedures. Usually, AID's agriculture office comes up with alternatives to the pesticides on the proposed list that would do the job, but with less hazard to people and the environment. A technical adviser often goes to the country to examine the crops, pests and diseases first-hand to recommend methods best suited to the particular conditions. Under an AID contract with the University of California, Berkeley, specialists can be in the field in days. Pesticides that AID recommends are usually registered with the Environmental Protection Agency, which may restrict their use. DDT, for example, is registered only for public health and a few other applications. Thus, it's effectively banned from widespread use in the United States, since it is not permitted for agriculture.

"Registration with EPA does not guarantee that a pesticide will be safe everywhere," Whittemore points out. Parathion, he adds, is a highly toxic pesticide that, although used extensively in U.S. agriculture, has been banned by other countries (especially developing countries) out of fear that the directions for applying it safely wouldn't be followed closely enough. Another serious worry in some developing countries is the uncontrolled and dangerous production of "fly-by-night" operators. They buy formulas from legitimate pesticides companies, dilute them or add additional chemical, and then relabel the compounds and put them on the market.



"Pesticides may appear to be the simplest, easiest solution to getting rid of pests," he notes, "but that's misleading." Whittemore has worked with pesticides for 40 years, with the U.S. Army, World Health Organization, Food and Agriculture Organization and EPA before joining AID in 1976. His experience has reinforced a healthy respect for what the compounds can accomplish—and his extreme caution. "It's very important to know the pest, crop, pesticide and, above all, the people who will apply it," he stresses, warning that "little is known about the long-term effects of many of the newer pesticides—there is probably as much literature on DDT as on all the hundreds of other compounds combined."

Pesticides have a definite role in protecting food supplies and cutting the incidence of disease he continues, "but there's a 'catch 22'—pesticides may get rid of one pest

Top left: Indian workers apply pesticide to a field of rice. Bottom left: A swarm of locusts settles. Above: A malaria eradication team member arms for battle.

only to make room for another; or they may work well until resistant strains develop; or the pesticide may work well for one crop, only to create problems elsewhere."

In Central America, huge amounts of pesticides have been used to protect the valuable cotton crops. However, high pesticide residues have turned up in food crops and meat intended for export, and the United States has more and more often rejected the products. A recent Government Accounting Office report recommended even stricter U.S. standards.

DDT's overuse in agriculture has led to resistant mosquito strains in some areas, and consequently malaria is returning to many of the countries in the region.

AID's Bureau for Latin America and the Caribbean recently hired a regional pest management specialist, Eduardo Trujillo from the U.S.-based Consortium for International Crop Protection. Trujillo is helping make some headway on these problems in Central America by giving technical assistance on crop protection as well as the management of pesticides. In keeping with the Agency's pesticide policy, Trujillo will be putting special emphasis on the use of non-chemical means of pest control.

His arrival in Central America in January was particularly timely as the region is faced with a number of severe pest and disease problems in critical domestic and export crops. For example, coffee rust (a fungus) is threatening the livelihood of large and small coffee producers. Trujillo, as the consortium's representative in the region, is promoting cooperation and coordination among U.S. and Latin America personnel concerned with crop protection. With the support of the U.S. ambassador in Guatemala, he met recently with coffee, beef and cotton producers, commercial fishing interests and pesticide manufacturers and importers to discuss the relationship between pesticide use, food exports and human health. Trujillo also held training sessions for Panamanian government forestry technicians emphasizing the proper use of pesticides for fast-growing trees that will be used to reforest areas in the Panama Canal watershed.

Studies conducted by the Central American Research Institute for Industry (ICAITI) for the U.N. environmental program reveal that inappropriate use of pesticides on non-food crops already is having serious negative effects on the quality of food crops used in the region and for export. This study also revealed that small farmers and their families were affected by airborne spray drift of pesticides, and beef production in adjacent areas was also impaired.

Bob Hechtman, acting director for the Regional Office for Central American Programs, reports this technical advisory service has been well received by Central American officials, farmers and scientists who have shown increasing concern over the consequences of misuse of pesticides. Although some of the countries have national programs and research centers, consistent standards on pesticide use for the region are lacking. AID is considering a project to strengthen institutions and help develop standards and methods for detecting pesticide residues and controlling pests.

Under a separate cooperative agreement with the Policy Science Center Inc. of New York, pesticide specialists will visit Latin American countries to gather information on appropriate means of managing the manufacture, container labeling and application of pesticides. Robert Otto, AID's environmental coordinator for Latin America, cites World Health Organization reports as many as 500 fatalities a year in Central America from mishaps or carelessness in applying pesticides as the basis for the bureau's high priority on this project.

Another pesticides adviser recently visited countries in the Near East, while the Asia bureau is also considering an adviser for the region.

"AID's efforts here should serve as a model for the development of sound environmental policies and procedures in other areas of the Agency's activities," suggests a report by the Natural Resources Defense Council. "There is an unfilled and growing need in developing nations for assistance in safe and effective pest control."

Observes Whittemore:

"People in the developing countries want—and need—the pesticides. They can get them, with or without the help of AID or other development assistance agencies. They are using them, not always properly and sometimes with serious consequences."

In 1975, AID was sued by four environmental groups over its financing of pesticides to developing countries and the use of these products in AID-funded projects, without prior environmental impact statements. In partial settlement of the lawsuit, AID prepared an environmental statement on its pest management program and revised policies and regulations on pesticide use.

More pesticides are being used by developing countries than ever before, however, and Agency officials emphasize the need for technical assistance and integrated pest management to ensure they are used safely and effectively.

From 1969 to 1974 (before the lawsuit) AID financed the export of some $17 million worth of pesticides a year, which accounted for close to 6% of all U.S. pesticide exports but still only 12% of the pesticides the United States exported annually to developing countries. With the changes during recent years, the Agency now finances fewer pesticides and those only for projects. In fiscal 1979, that amounted to some $8.3 million in pesticides, with the large majority going to malaria control. Thus, AID's programs and policies affect only a fraction of the pesticides going to developing countries.

Pesticides that cannot be used in the United States because they lack EPA registration can still be produced and exported by U.S. firms. Whittemore stresses that countries should be alerted to the possible dangers of these products and the need for careful monitoring.

He considers integrated pest management a promising approach for developing countries, adding that a report on AID's activities in that area is being combined with reports from other U.S. agencies by the Council on Environmental Quality for submission to the President by June 30. "Pesticides in many cases are the best way to control pests," he points out, "but there are ways to moderate their use and frequently there are alternatives."

Perhaps 40 or 50 insects may be associated with a crop, he explains, some of which are beneficial. Only a few "key pests" cause enough damage to justify the cost of controls (such as pesticides or other methods). That is called the "economic threshold" in integrated pest management. Care must be taken so that treatment to remove key pests does not just open the way for other (secondary) pests. Whittemore cites the brown planthopper, which became a serious problem in Asian rice crops once the parasites that used to keep the insect under control were removed. Biological controls could help. The International Rice Research Institute has done promising research on parasites and predators of the planthopper, which may have the added advantage of attacking the larvae of malaria-carrying mosquitoes.

In spite of the current interest in integrated pest management, Whittemore says it is hardly a new concept. Demonstrations in agriculture, forestry and public health in the United States over the years have shown its benefits. A U.S. Department of Agriculture report recently noted that some cotton growers reduced the number of insect sprays 50% by following the advice of "pest detection scouts" who check fields to measure pest populations and determine the best time for applying pesticides. This method could benefit areas like Central America, where doses of pesticides on cotton are endangering other food crops. Whittemore feels that integrated pest management, which depends on careful monitoring, is especially suited to labor-intensive farming in developing countries.

"There's more interest in the approach now than a few years ago," Whittemore comments, "but obstacles remain. Farmers in the United States and other countries don't want to take the risk of something new, even when pilot programs have been very successful. They still see pesticides as a form of insurance—a 'sure thing.' Getting the word to farmers on alternatives is difficult, especially since they get most of their pest control advice from pesticides salespeople. Other problems are the shortages of people trained in these techniques and unnecessarily high standards we set for insect fragments in food and 'cosmetic' appearance of fresh fruits and vegetables. Not all bugs are bad, and a few more ground-up insects in cereal wouldn't be harmful. The price we pay for unblemished produce—in terms of pesticides and environmental damage—may be much higher than we think." ☐

Growing Together: Peace Corps and AID

The 80s promise understanding, shared goals.

by Kay Chernush

They were bright, young and idealistic—pioneers on the New Frontier. The State Department gave them orientation and ordinary green passports like ordinary Americans going abroad. The White House, with much fanfare, gave them a send-off, which was only fitting since they were the first contingent in John F. Kennedy's cherished Peace Corps.

When the first volunteers stepped off the plane in Accra, Ghana, in 1961 and sang Ghana's national anthem in Twi, the local language, it marked a departure for American diplomacy. In varying degrees, the young Americans could speak the local language. Intensive training had prepared them to accept different customs. They were ready to live simply, in the same manner as their new friends and co-workers. There would be none of the special privileges—no commissary, no hardship bonuses, no air-conditioned houses—that cushion the diplomats' lot and set them apart from the local culture.

"We saw ourselves as very different," says Kelly Kammerer, an early volunteer in Colombia, later a Peace Corps staffer in Washington and now AID's deputy general counsel. "It was ingrained in us to avoid all contact with AID people. We were encouraged not to have joint participation and joint programming. There was always the feeling that AID was living high off the hog and not being culturally sensitive."

Paula Goddard, deputy coordinator for AID's Women in Development office, taught African history in Kenya for the Peace Corps about a decade after Kammerer. She remembers having a similar "stereotyped" view. "It was really a holier-than-thou attitude of those of us in the front lines. The way we were living and working made us feel superior."

> *In the early days, there was a lack of regard for AID. Peace Corps was protecting its virginity.*
>
> *—Mack Taylor, AID recruitment chief, former Peace Corps director in Liberia*

For their part, AID people largely reciprocated the feeling—if they thought about it at all. "A bunch of kids," was how they viewed the Peace Corps. "What do a bunch of kids know about development?"

While individual relationships sometimes rose above such sentiments and a certain amount of informal cooperation took place between the two agencies, a "them-and-us" attitude persisted into the 1970s. "Peace Corps people always viewed themselves as pure and undefiled," observes Jim Kelly, who was on that first plane-load of volunteers going to Ghana. "AID people saw themselves as wise and having all the technical competence. Let's face it, both views are somewhat short of reality."

Kelly now directs AID's programs for the Sahel and Francophone West Africa. Times change, "the kids" have grown up and nearly 20 years after the Peace Corps' founding, a sizable number of its former volunteers and staff members are working for AID.

A survey of AID's overseas missions and Washington bureaus reveals the extent of the Peace Corps connection. Out of nearly 3,700 AID employees (excluding those hired locally in foreign countries), 462 have had Peace Corps experience, either as volunteers or staff members—or both. In Washington, they are found in nearly every bureau and at all professional levels, from newly recruited interns to the new deputy administrator, Joseph C. Wheeler, who in 1961 helped set up Peace Corps operations in the Near East and South Asia. More than 170 hold such jobs as desk officers, program designers, capital development and loan officers, policy planners, financial and personnel managers, technical experts, lawyers and economists. Three of the Agency's major bureaus are headed by former Peace Corps staffers.

Not surprisingly, given the Peace Corps bias in favor of cross-cultural involvement, an even greater number work overseas—287. In Costa Rica, former Peace Corps people make up 53% of the mission staff, including Director Stephen Knaebel and Deputy Mary Kilgour. In Cameroon there are more than 40%, in Jamaica 28%.

> *From my experience in rural Africa, living at the same level as the people I was working with, I got a perspective that I wouldn't have gotten if my standard of living was higher.*
>
> *—Alvin Newman, AID International Development Intern, former Peace Corps volunteer in Ethiopia and Liberia*

In addition, an undetermined number of former Peace Corps volunteers served with the International Voluntary Services (IVS), a forerunner of the Peace Corps, and a veritable shadow army of former Peace Corps hands work for AID contractors and voluntary organizations such as CARE, World Education and Save the Children. Says AID

Controller Doug Stafford. "The Peace Corps is a better school tie than Harvard."

Stafford joined the Peace Corps during the 1960s, taking a two-year leave of absence from a well-paying job as an IBM marketing representative. As with so many others, the experience radically changed his life. "I was highly successful," he observes with a nonchalant shrug, "and I asked myself—is this all there is to it? I wanted to work in the Peace Corps because it was a noble cause." After helping install a computer system in Peace Corps headquarters, he was asked to be deputy director in Liberia. "Where's that?" he remembers asking. "That's the way this romance started."

Part of the growing Peace Corps connection at AID stems from AID's intern program, which recruits and trains professionals. Nearly half of the interns in recent years have been former Peace Corps volunteers. AID recruiters, in fact, rate Peace Corps experience as a definite plus, particularly when combined with an advanced degree. Others in AID, aware of charges of cultural insensitivity and bureaucratic formalism, believe the "practical feel" and language skills that ex-Peace Corps people bring with them are "the best thing that's happened to AID in years."

"As I look at AID circa 1960 as opposed to 1980, there's a world of difference, not only in what we're doing but in the sensitivity involved," remarks Calvin H. "Hank" Raullerson, who directs AID's cooperative development programs. While AID's mandate is far broader than Peace Corps', encompassing such different aspects of bilateral economic assistance as the Food for Peace program, disaster relief, development loans and balance-of-payment support, there is more emphasis now on technical assistance in agricultural production, rural development, health and education.

Peace Corps also is not a monolith and is continuing to evolve in response to changing conditions and needs in the Third World. Having pioneered a one-on-one, grass-roots approach to development, Peace Corps has long had to prove itself as something more than a rewarding cross-cultural experience for Americans. Volunteers are no longer "parachuted" into remote areas and told to "find something useful to do," as sometimes happened in the early days. There is a more rigorous matching of volunteers' skills with host country needs and a recognition that a development assistance program today is acceptable only if it furthers development.

"We have all learned," says Robert MacAlister, whose Peace Corps memories include "being a guinea pig" for volunteer training in Puerto Rico back in 1962. Today, working in AID's Africa Bureau on special development problems like renewable energy and appropriate technology, he finds himself drawing on his Peace Corps background. "The whole appropriate technology thing comes out of Peace Corps experience, what has been learned at the grass-roots level."

Like many others at AID, both with and without a Peace Corps past, MacAlister firmly believes in collaboration between the two agencies and would like to see more of it. "I'm in a position to keep promoting that in project design," he notes. "As new projects evolve, more volunteers will be working in them."

Paula Goddard taught in Kenya as volunteer. Now she's AID's deputy director for Women in Development.

Indeed, despite the old attitudes, there has always been some cooperation between AID and the Peace Corps in the field. MacAlister, for example, while serving as Peace Corps director in Chad in 1968, helped start a joint wells project that continued until growing civil strife forced the evacuation of Americans earlier this year. According to Raullerson, a Peace Corps director in Kenya and later head of the corps' Africa region, there was never any stated policy about not working with AID. But any cooperation tended to result from *ad hoc*, informal agreements and depended on the type of project and the personalities involved.

> *The difference with AID now and AID then is the basic human needs strategy. AID has refocussed . . .*
>
> *—Pat Baldi, acting deputy director, AID's Office of Population, Peace Corps volunteer, Brazil 1966-68*

"In Kenya, our program lent itself to working with AID and we took advantage of that," Raullerson recalls. "We had Peace Corps volunteers who received quite a bit of assistance from AID and that's true of some other countries, too. But the record is probably spotty."

Special funding programs, which were limited to small grants and didn't involve any red tape, were one way AID provided support to Peace Corps in the early years—and still does. During the 1972 budget crunch, AID even came to Peace Corps' rescue with $2 million for volunteer living allowances. But what troubled many observers was that Peace Corps seemed to have all the people resources and AID had all the money, and there was no mesh between them.

With the convergence of Peace Corps and AID objectives and the changes in attitude, cooperation becomes both logical and necessary. "Particularly at a time with so many limitations and budgetary constraints, we have to find more ways to ensure cooperation," says Alex Shakow, AID program and policy coordination chief. In fact, two years ago the two agencies signed an agreement to do just that. More recently, AID Administrator Douglas J. Bennet Jr. and Peace Corps Director Richard Celeste sent out a joint cable to overseas posts urging renewed efforts at collaboration.

Of course, it's still possible to find some among AID's "old guard" who do not consider Peace Corps a serious development agency. One person, upon learning that Peace Corps would be going into Bangladesh, reportedly sniffed, "It will be fun for the kids but a mess for Bangladesh." Another senior level official, while recognizing some of Peace Corps' contributions, said, "Development is more than having a good heart and good will."

When I came here in 1975 with my preconceived notions, I was very impressed . . . AID people at different levels really know their business.

—Kelly Kammerer, AID Deputy General Counsel, former Peace Corps volunteer in Colombia

Far more common, however, is the view that each agency has something to offer to development. "Peace Corps optimizes what the non-specialist can produce," observes Paula Goddard. "At AID, knowledge is deeper but narrower. Both approaches are appropriate for their particular mandates, but both suffer the lack of the other."

There was limited cooperation between AID and Peace Corps in the 60s and 70s. AID was seen as concerned only with the technical aspects of development.

The general feeling seems to be that despite real difficulties in meshing different styles and program requirements, the two agencies share a common purpose and the strengths of one complement the strengths of the other. Jim Kelly sums it up when he says, "We have to focus on how we should come together to speed the development process rather than on differences of approach and differences of instruments used."

Jim Kelly, who now directs AID's programs for the Sahel and francophone West Africa, was part of the first contingent in John F. Kennedy's cherished Peace Corps.

Perhaps because AID is so much bigger, it bears the onus as a cumbersome, unfeeling, inflexible, paper-logged bureaucracy while Peace Corps manages to preserve its image as creative and flexible. But, in dozens of interviews, former Peace Corps people working at AID have overwhelmingly praised the professionalism they find there. Quite a few concede that their earlier perceptions of AID had been "negative and uninformed." Desk officer Celeste Robertson, who served as a volunteer in the Ivory Coast, finds "just as much commitment in both agencies, and in both institutions the paperwork can get you down."

Many suggest that Peace Corps' main contribution may ultimately lie in the cultural sensitivity and broader world view that former volunteers and staff bring with them to future careers, particularly in a place like AID. In fact, this view is embodied in one of the Peace Corps' goals—namely, to promote better understanding on the part of Americans of the peoples of the developing world. At AID, while they can and do differ on specific policies and programs, the Peace Corps people tend to share similar values, a people-oriented approach to development problems and a view of the world shaped by their experience among its poorest and most deprived citizens.

A certain amount of tension and poking fun between the two agencies may be inevitable and even beneficial, in that it furthers an *esprit de corps*. This was certainly true of the Peace Corps during the early days, when people were afraid of being swallowed up by AID. Now, however, attitudes are shifting. As one AID staffer puts it, "Development is so hard, so complicated, there's room for more than one approach. ☐

Kay Chernush is a photographer-writer in AID's Office of Public Affairs.

Doing more with less:
The future of technology in the

Dwindling resources and mounting debt force developing countries to seek modern

by William L. Eilers

A new profession of futurists has emerged in our society. The more successful are invariably optimists, who proclaim that we live today in the best of all possible worlds. The pessimists fear that this is true.

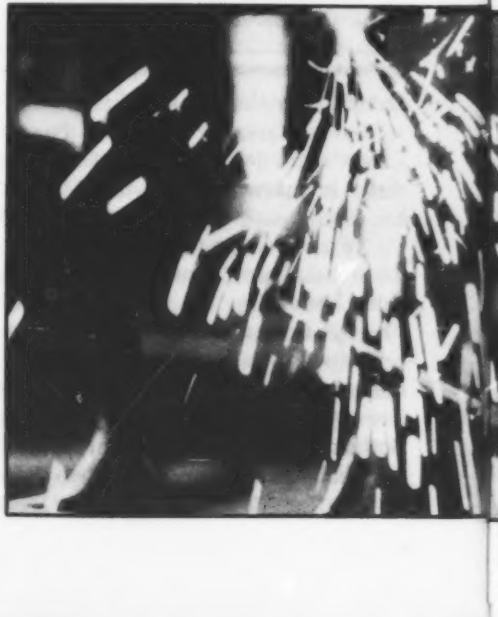
The tumultuous events of late—Iran, then Pakistan and Libya, plus the famines in Cambodia and Somalia—have many of us asking just where we went wrong and what we can do about our position in the world.

What there is to say about the grave situation in developing countries is not new, but it bears repeating. A quarter of the world's population—a billion people—exist in abject poverty. This poverty is so desperate that most of us have difficulty comprehending it. In South Asia alone, the numbers who live in utter deprivation are twice the U.S. population. Children suffer the most. Half of all deaths in these countries are children under 5, with one out of four never reaching that age. More than half don't attend school.

The world population growth in the next 20 years alone will equal the growth in population from the birth of Christ to 1950. Ninety percent of this growth will occur in the developing countries, adding more than 500 million to their labor force by the turn of the century. The burgeoning population of Third World cities will suffer even greater increases, fueling unemployment, crime, and environmental stress.

Compounding these problems are the immediate crises of increasing energy costs, rising external debt and the threat of industrial recession in the industrial countries. The slowdown we are seeing in our economy, with big steel and the car

Third World governments are calling for a new global effort to build technological capabilities in the least developed nations. The potential benefits are unlimited.



Third World

technology.

plants shutting down, means that exports from developing countries are going to contract sharply and will further restrict their ability to import goods and repay foreign loans. The 1980s will see a disintegrating international economic order; economic growth is going to be extraordinarily difficult to achieve.

In its formative years, the United States had a lot going for it—abundant natural resources, navigable rivers, access to two oceans, an energetic population, and a workforce with skills and a work ethic. Many developing nations have few resources. Fifteen of the 30 least developed are totally landlocked. Most lack trained people of any kind. Most are in the tropics, where they are plagued with diseases such as river blindness and snail fever, a recent upsurge of malaria, spreading deserts, tsetse flies, locust plagues, monsoons, earthquakes.

The specter of starvation already confronts Cambodia. One-third the population of East Timor is malnourished and has reached the point of being unable to recover. The world's largest refugee population, in Somalia, faces the spread of disease and starvation. India has suffered major crop failures this year. Zambia's disastrous corn crop may be only another harbinger of more serious and widespread famine we may see in the 80s.

Significant international steps are being taken to cope with global problems. Yet, despite these initiatives and vast increases in bilateral assistance in the food field, there are a lot more hungry people today than five years ago and the growth of the world food deficit has accelerated.

Margaret Mead remarked that the United States alone has the power to destroy the world, but not the power to save it. All the donor nations together, including the Communist bloc, cannot save the world without the full cooperation of the developing countries. When we are dealing with issues as diverse as the global refugee problem, exploration of the deep seabed, control of offshore coastal resources, control of nuclear proliferation, protection of the earth's atmosphere and ending international terrorism, we need the cooperation of all developing countries, most of whom share our desire for just solutions of these problems.

Traditionally, we have justified development assistance on humanitarian grounds or have argued that economic aid is vital to national security. But now there is a growing perception that the developing countries have become essential to the health and growth of the American economy. Our economic well-being depends to an ever-increasing extent upon our ties with the Third World, links that are growing faster than with any other group of nations.

Export promotion has become far more significant—a major policy instrument to promote growth and strengthen the faltering dollar. We export more to the developing countries than to Western Europe and Japan combined. About 35% of our exports go to the developing states—a third of our wheat, cotton and rice is sold to these countries.

These less developed nations are also the source of valuable imports. Last year the U.S. bought nearly $75 billion dollars, or 42%, of our total imports from them. We rely heavily on them for many commodities critical to industry—30% of all raw materials are derived from this source. By the year 2000 only 20% of our primary raw materials will come from domestic sources. Right now we depend on them almost exclusively for tropical products—coffee, cocoa, nuts and spices, bananas and fibers.

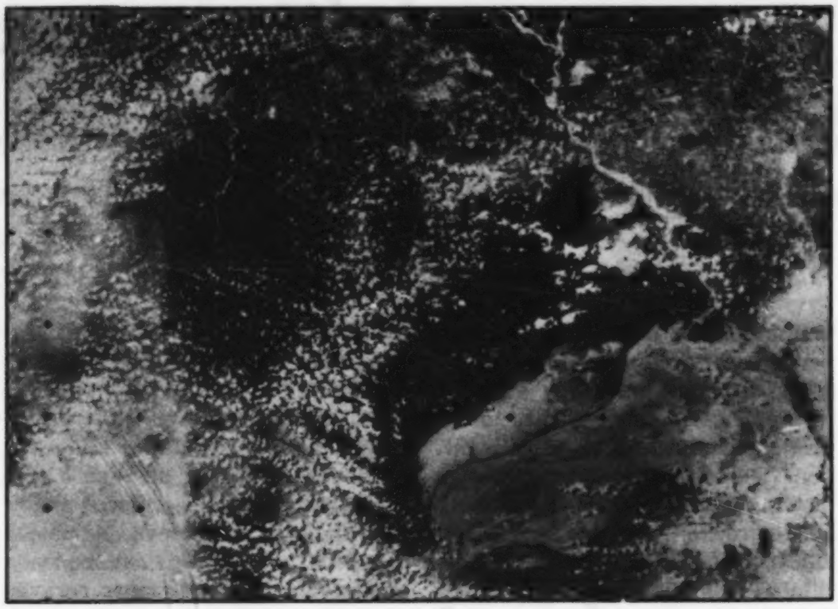
It is estimated that almost half of the unexplored global deposits of gas and oil lie in non-OPEC developing countries. They offer potentially diversified sources of supply for all oil-importing countries.

Last year U.S. firms invested over $40 billion in developing countries, a quarter of our total foreign direct investment. And the rate of return on investment in these countries last year was 66% greater than the rate for investments in developed countries. They proved highly profitable, and last year generated 35% of total income from U.S. foreign investments. And during a time when we are facing massive unemployment from the shutdown of major industries and their suppliers, we should keep in mind that the jobs of 1.2 million American workers depend on exports to developing countries. If these exports continue to grow, developing nations can import more and more U.S. goods and services.

If the argument that it is in our national interest to help the Third World is persuasive, then a question arises: In what ways can this country share its scientific knowledge and technological know-how with these countries to mutual advantage? It is well known that one of the most strident and pressing demands from the developing countries is that the United States share its technology with them, help them to build their own capacity to adapt foreign technology to our needs, and generate their own appropriate technologies. But does modern technology possess the real potential they credit it with?

In any event it is inevitable that, skeptics notwithstanding, new technology will pervade our lives in the 80's. The greater potential of the new technology lies in relatively new fields where large-scale applications have yet to be made. The emphasis will be on doing more with less in a climate of dwindling resources. We all hope that the auto makers are right when they predict that minicomputers in cars may reduce gasoline consumption by at least 15%.

A recent *Newsweek* article indicated there will be few opportunities for quantum leaps in older industries such as steel or textiles, but for the most part new technologies will fall into five rapidly emerging fields —microprocessers, fiber optics, superconductivity, space technology and recombinant DNA. As far as developing countries are concerned, a number of more promising fields of technology will come into their own during the next 10 years.



Landsat and a host of other satellites add a new dimension to monitoring Earth's natural resources and environment through remote sensing.

Let's look at microprocessors. Within five years we'll be able to put 256,000 bits of information on a single silicon chip at no increase in price, whereas just 10 years ago only 16 bits could be fitted onto one chip. By 1990 portable microcomputers will be almost as commonplace as handheld calculators are now. This means that many of the functions now performed by human beings in the manufacturing and service sector of industrial economies can be done faster and cheaper by microelectronic devices or by robots controlled by these solid state instruments. This means speed, cost reduction, flexibility, reliability, and capacity for self-diagnosis and correction. One forecast is that while the French banking industry will expand measurably during the 1980s, employment will decline 30%. Since the occupations involving information now institute the largest category in the work force of most industrial countries, even moderate increases could have a devastating impact on employment. Think of the millions of lower level white collar workers in banks, small businesses and other enterprises in developing countries who will be displaced by the small computer. If you introduce microprocessors in these countries, there is bound to be a severe impact on employment.

The Science Policy Research Unit at the University of Sussex in England believes that job displacement will draw far ahead of job-generating investment in the 1980s. In Third World countries already confronted with high unemployment—in Iran it is running 25%—there are likely to be large-scale social crises when they are forced to deal with a rapidly growing work force, widespread poverty and a badly skewed income distribution.

Recombinant DNA holds great promise. We now produce insulin in this country with a new DNA process and hope we can adapt a similar process to produce interferon, a tremendously expensive and little studied substance that could offer a new approach to fighting cancer. Scientists are growing a special type of bacteria that has an enormous appetite to gobble up massive oil spills from supertankers. In Saudi Arabia Chinese scientists are working to manufacture an economical single

Remote sensing can provide information countries need to manage their resources.

cell protein that can be grown on a petroleum substrate for animal feed.

We will see impressive new advances in the food field. AID, for example, is investing $40 million to improve selected grain legumes, which make up the major source of protein for half the world's poor. They are important because they supply the high quality protein lacking in most cereal grains. Recent breakthroughs in the science of biological nitrogen fixation offer considerable promise in increasing the capability of certain legumes such as cowpeas and soybeans to obtain most of their nitrogen fertilizer requirement through bacteria living on their root nodules.

We are working on new crop introductions, such as winged bean, a tropical legume whose protein content is about identical to that of the soybean. The National Academy of Sciences has identified dozens of little known or underutilized tropical crops that it believes have a great untapped potential for developing countries, many of which make less demand on soil, water and fertilizer than temperate crops previously introduced in these regions.

A really significant research breakthrough has been achieved in the physiological techniques required to introduce spawning in milkfish. This is the most widely cultured marine fish in Southeast Asia. Simply put, you mix a cocktail of valium and an antibiotic to calm the large adult fish and reduce infections, and then add a hormone injection, and presto—you rear massive quantities of fish fry from eggs instead of netting fry in the open sea for stocking fish ponds. This means vast new quantities of milkfish can now be reared in millions of hectares of unused mangrove swamps and brackish coastal lowlands, providing a new source of protein at very low cost. For several million rural coast dwellers, typically the most poverty-stricken in these countries, it means higher incomes and more plentiful protein.

At Alabama's Auburn University, fish breeders have produced a new hybrid tilapia that has a significant worldwide potential. Brazilian scientists recently discovered a herbivorous Amazon fish that will convert agricultural and food industry wastes to edible protein.

An international network of 10 malaria research institutes recently demonstrated that a malaria vaccine is biologically feasible, with 100% success in immunizing monkeys against human malaria. This means that within the next decade we can probably provide a vaccine for field trials that will most likely become widespread in the last decade of this century.

The critical global shortage of firewood is being attacked from many angles. The lack of firewood means that women who might otherwise be attending to essential chores must often walk for hours to gather dwindling supplies of wood to cook the evening meal and keep the family warm. Not only is firewood critically short, but due to overcutting there is massive destruction of tropical forests in the greenbelt around the equator. One partial remedy promoted by AID's experts is introduction of an extremely fast-growing tree from the Philippines called the *leucaena*. It can grow 65 feet and 16 inches in diameter within five years.

There are other answers to the firewood shortage. The simple lorena stove developed in Latin America and made of clay and sand uses firewood much more efficiently. Biogas digesters are supplying methane for cooking in India and many other countries. Solar reflectors are being increasingly adopted for cooking in many tropical areas.

What is the ultimate answer in providing village energy needs in developing countries? I. H. Usmani, the United Nations Development Program energy adviser, is convinced that it lies in photovoltaic arrays that use small silicon solar cells to convert sunlight directly into electricity for storage in local village batteries. Last year the cost per peak watt was around $7, but this is expected to drop to about 50¢ by 1986. At this level it can compete economically with oil and possibly other fossil fuels. Right now one village in Upper Volta is using the photovoltaic source to pump water and grind grain with practically no upkeep cost. There are problems of course—the source of raw materials is limited and battery storage often presents a problem. If Usmani's prediction is true that solar cells are the answer for remote villages, within the decade we will have the promise of extending new communications into remote areas to power radio and TV, provide refrigeration for drugs and vaccines and, most important, for the first time offer millions upon millions of remote villagers electric lights to study and read by.

The use of very small hydroelectric power is another very promising possibility for villages. For example, $15,000 and a lot of labor permitted several villages in a remote valley of Papua New Guinea to install a mini-hydroelectric plant. For the first time they not only have light for their schools and a regular water supply for the village, but for the first time in their lives each villager can have at least one daily hot shower.

Rolls Royce has just developed an inexpensive small turbine that can generate electric power for rural areas using a low-grade alcohol as fuel. The corporation is actively promoting distilleries to convert cassava, sugar cane and agricultural wastes to alcohol in developing countries that are suffering most from escalating oil prices. And in Brazil, 2 million cars are now fueled with gasohol, local alcohol distilled from sugar cane.

A host of other intriguing technology is coming, all of which hold a promising potential for the 80s. Some are even far out. For example, the scientist who developed the concept for towing icebergs from Antarctica to supply water to Saudi Arabia has a new scheme. It involves a giant sausage-like steel skin about two-thirds of a mile long, which is pulled underwater by an ocean-going tugboat that is also semi-submerged and has a propeller over 100 feet in diameter. The scientist feels the first high priority application of this new approach would be in Chile. There, the giant Kennecot and Anaconda copper companies are desperately short of fresh water near the Atacama desert, one of the driest places in the world. He proposes to tow fresh water from the abundant supplies in the southern Chile rivers to not only help the copper companies, but to make the Atacama bloom.

I have barely touched upon some of the exciting new technologies awaiting us in the next 20 years. In seeking to use these technologies, developing countries face a bitter choice. They can be integrated into the present international system, which will only increase their technological dependence. Or, on the other hand, they may disengage themselves from that international system and be forced to forego benefits of worldwide scientific and technological advance.

Discussion at the Vienna Conference on Science and Technology pointed to the likelihood that they'll opt for limited integration, but will insist that it be within the terms of a new economic order for which they are pushing strongly. Negotiations are underway in the UN Conference on Trade and Development—UNCTAD—regarding codes of conduct governing technology transfer and the behavior of multinational corporations in sharing technology assets. Elsewhere negotiations continue on revising the Paris Convention governing international patents and licensing agreements. This debate on mandatory vs. voluntary codes comes down to the question of the extent to which industrial countries are prepared to subsidize technology flows competitive with their own industries. In our own country, corporations and unions are joined in arguing vehemently that export of technology means export of jobs, pointing to our experience in recent years with Korea, Hong Kong, Taiwan, Singapore and other new industrial nations.

In any event, we must do everything possible to enhance the negotiating capability of developing countries in their effort to acquire foreign technology. One practical way has been suggested by the National Association of Licensing Executives, which has asked AID to help them conduct training courses for developing country executives responsible for negotiating foreign technology license agreements. This is a positive step.

It is essential that we strengthen indigenous capabilities in these countries to decide among technological alternatives and to help them carry them out. Special measures must be adopted to ease the international flow of technology for the benefit of least developed countries. □

William L. Eilers is with AID's Office of Science and Technology. His article is adapted from a recent speech before the Association of American Colleges.

WHAT THE MEDIA SAY...

While lawmakers here (in Washington) haggle over spending limits, refugees in Somalia—who now total more than 1.3 million people, the largest group of refugees in the world—are running out of food.

American refugee officials say that the plight of the Somali refugees represents the most urgent need for the United States' foreign assistance. Unfortunately, they add, our aid to the Somali refugees may end soon, a victim of political circumstance.

So, while American farmers worry about falling grain prices, and taxpayers worry about inflation and Congressmen worry about the elections, refugee officials ponder with growing despair the plight of the refugees in the Horn of Africa.

—New York Times

The rapid development of Sino-American relations is about to confront the Carter administration with the difficult questions of what kind and how much assistance the United States will give China for its ambitious modernization efforts.

The costs, both in political and economic commitments, will probably be high, but U.S. officials now see a strong China as more important than ever to the American global strategy.

—Baltimore Sun

A new report compiled by the National Research Council—the operating arm of the National Academy of Scientists—says the loss of tropical forest land is continuing at a much faster pace than scientists had estimated, and that there is now growing evidence that tropical rain forests could disappear entirely. . . . The committee calls for an immediate increase in research in the forests, including a greatly accelerated biological inventory of the threatened lands and an expansion of studies on tropical ecosystems.

—Lance Gay
Washington Star

Thailand announced massive energy saving measures this week as the fuel import bill approached $3 billion annually. The measures include the curbing of domestic electricity consumption as the level of water in upcountry dams fell dangerously low.

—Journal of Commerce

Business confidence in Central America is ebbing fast as Marxism spreads through the region which is on the way to becoming an enemy of the United States.

This was the message given recently to the House of Representatives Foreign Affairs Subcommittee on Inter-American Relations by officials of the American Chambers of Commerce in Nicaragua, El Salvador, Guatemala and Costa Rica.

—A. Koffman O'Reilly
Journal of Commerce

The developing countries in non-Communist Southeast Asia, considered to have among the highest growth rates in the world—averaging some 6% across the board in the five members of the Association of Southeast Asian Nations in the past five years—are now seen to be on the wane.

Chemical Bank's economic research department said real growth in Asia slowed in 1979 and the trend will continue as consumer price inflation increases and current-account deficits rise sharply . . . The bank predicted that Asia's 10 largest developing nations will experience an average growth rate of 5.2% in 1980, while the developed nations in Asia—Japan, Australia and New Zealand—will grow at only some 4%.

—Journal of Commerce

A project started in Sunflower County to raise pigs has now been used as a model for a similar project in Swaziland in Africa.

The pig cooperative is one of several projects that will create more job opportunities for women in rural Swaziland. The cooperative project (funded with a grant from the Agency for International Development) was planned jointly by a special committee appointed by King Sobhuza II of Swaziland and the international division of the National Council of Negro Women of Washington, D.C.

—The Enterprise-Tocsin
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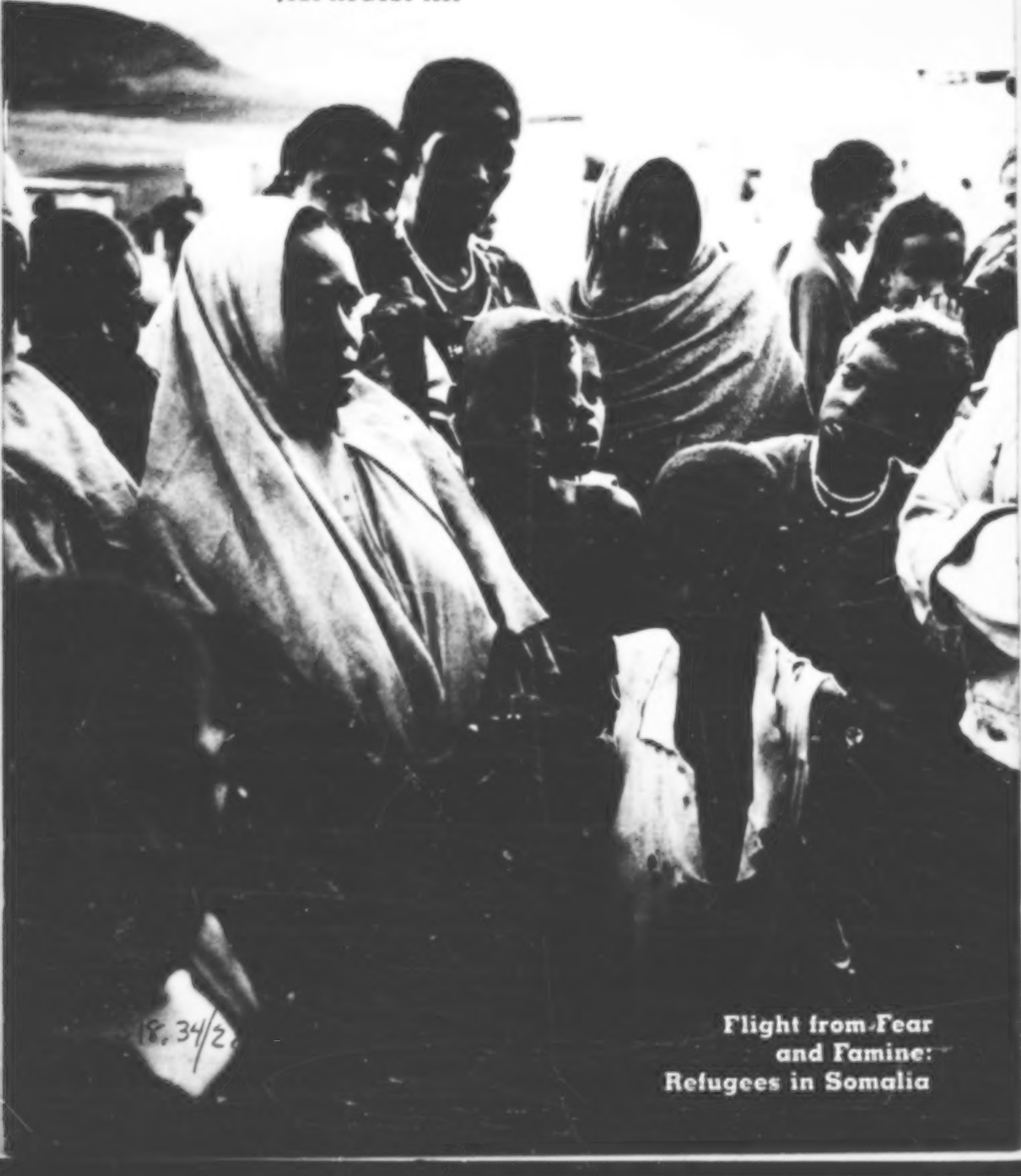

Flight from Fear
and Famine:
Refugees in Somalia

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DEVELOPMENT UPDATE

"Over the long run, the only societies with sustainable economies are apt to be either fully participatory or utterly authoritarian." From a Worldwatch Paper, "Inflation: The Rising Cost of Living on a Small Planet."

Where there's a political will, there's a way: Indonesia's population growth rate has declined dramatically. Today more than 5.5 million Indonesian women—30% of the married women of reproductive age—are using contraceptives. That adds up to a 20% decline in the growth rate in a decade. Why such a dramatic change? Many people attribute it in large part to the government's "political will"—its willingness to use its influence and devote major resources to reducing the enormous population pressure on the land. In 1900 the population was 40 million; today it is 135 million.

A Peace Corps volunteer and the conservation dilemma: "Once we've gotten over the strange new sights and sounds of a Peace Corps assignment, it's something of a shock to realize that some hazardous health conditions exist within that quaint little mountain town; that a picturesque stream picks up a fairly heavy load of unspeakable contaminants by the time it runs its course. 'How can people do this to themselves?' we wonder. But our dismay soon becomes tempered with the understanding that the farmer who's trying to feed his malnourished family on the corn and beans he can coax out of a few hundred square meters of rocky hillside has little time to worry about the long-term effects on the watershed; that the hunter who traps an animal to eat or sell isn't overly concerned with whether he's snared a member of an endangered species." From the *Peace Corps Times*.

Idaho pea and lentil growers have cause to rejoice. And so will the people of Somalia and Cambodian refugees. According to a Moscow, Idaho, newspaper, Sen. Frank Church, chairman of the Senate Foreign Relations Committee, has worked with the Growers' Association, the U.S. Department of Agriculture and the Agency for International Development to promote the use of dry peas abroad as part of the government's Food for Peace and famine relief programs. Church said 1,000 metric tons of dry peas will go to Somalia and an additional 5,000 metric tons to help feed Cambodian refugees. "This is good news for Idaho growers," Church said.

Women on the wing: Nigerian women have traditionally controlled the country's retail economy, reigning supreme in the markets, where much of the country's trade is transacted. Some of the market women, in fact, have moved into a kind of international trade, traveling by air to neighboring countries with their bundles of merchandise and their babies strapped to their backs.

Thirty-four of the 500 largest international companies are now based in developing countries. "Like it or not," write two business school professors, "the days are numbered for the political and economic hegemony of a few major powers whose populations are a minority of our planet's membership." According to David A. Heenan and Warren J. Keegan, writing in the *Harvard Business Review*, the new multinationals will play an increasing role in improving conditions in the Third World.

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Cover: Fleeing relentless drought and continuous fighting in the Ogaden area of Ethiopia, thousands of people are flooding into Somalia each day. See story on page 2. Photo by Carl P[illegible]ell/AID.

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Douglas J. Bennet Jr., Administrator
James W. McCulla, Director
Office of Public Affairs

Press and Publications Division,
Office of Public Affairs
Agency for International Development
Washington, DC 20523
(202) 632-8351

Edward R. Caplan, Division Chief
Lee Mullane, Editor

Flight from fear and famine:

REFUGEES IN SOMALIA

Fighting in the Ogaden and drought force Somalis to seek refuge.

By the end of the year, a third of Somalia's people could be refugees. Over the past three years, refugees have been flocking into the east African country at a rate of 2,000 a day.

Over 700,000 rufugees are now in 21 camps inside the country and another 500,000 are in small towns and villages barely able to support their own populations. About 20,000 Somalis are also in Djibouti to the north. The refugees are suffering. Many are dying. The United Nations has appealed to the developed world to help save them. The United States and several other nations already have begun shipping food, medicines, and material for temporary shelter.

"It is difficult to visualize this situation," says Thomas Quimby, senior consultant with Africare, a private American-based agency specializing in helping Africa. "When you go into a refugee camp, you stand on a car and there are huts as far as the eye can see. The huts are made from thorn bushes and are covered with tarpaulins, if the people can get tarpaulins, or with plastic sheeting. Each camp has about 42,000 people, with 4 to 5 people living in each hut."

Quimby, former deputy assistant secretary of state for Africa, was part of an Africare fact-finding team that recently visited Somalia. He adds: "We saw children—over half the people in the camps are children—with bellies swollen from protein deficiency. Their hair was turning red, another sign of protein deficiency."

Many believe Somalia has the worst refugee situation in the world. In all, an estimated 1.2 million refugees and displaced persons, faced with war and drought, fled into Somalia from the Ogaden region, subject to a tug-of-war between Somalia and Ethiopia, and the southern Ethiopian provinces of Sidamo and Bale.

The turbulence began in 1977, when Somalia invaded the Ogaden and seized vast stretches of desert inhabited by ethnic Somali nomads living inside Ethiopia. A year later, the Somalis were forced to retreat when Ethiopia invaded the region with the help of Cuban troops and Soviet air support. The subsequent crackdown against suspected Somali rebels in the Ogaden sent waves of refugees streaming into Somalia. The refugee problem was made worse by drought in the Ogaden and in southern Ethiopia, by alleged brutality against the nomads and by attempts to seize Somali livestock.

The flow of refugees has grown over the past three years. Last September, Somali President Mohamed Siad Barre declared a state of emergency and appealed for over $100 million in refugee assis-

by Emmett George

tance. Drought in East Africa in October and November 1979 forced other war-weary nomads out of the Ogaden and southern Ethiopia in greater numbers. Most of the herdsmen who traditionally drove their animals back and forth across the Ethiopia-Somalia border lost their livestock to the drought and Ethiopian military takeovers.

Quimby reports that the refugees are living on the brink of starvation and that Somalia desperately needs dependable, massive food shipments to avert a major famine. "There is also an acute shortage of clean water, food, health care and sanitation facilities (in refugee camps). One of the things that makes the situation in Somalia worse than in Cambodia is that while most Cambodian refugees are near Bangkok, where they can get some emergency supplies, Somalia is on the Indian Ocean. There isn't much they can get from Nairobi (Kenya) or South

"By the end of the year, a third of Somalia's people could be refugees. Over the past three months, refugees have been flocking into the east African country at a rate of 2,000 a day."

"When you go into a refugee camp, you stand on a car and there are huts as far as the eye can see. The huts are made from thorn bushes and are covered with tarpaulins. . ."

Africa, so they depend on Europe for help that takes one to two months to arrive."

Somalis are nomadic herders for the most part. Their country is an extension of the sub-Saharan Sahel zone that sweeps across most of Africa. Somalia is bordered by the Indian Ocean, Kenya, Ethiopia and Djibouti. Less than one-fifth of the country is suited for farming—lands near the two great rivers, the Guiba and the Shabel in the South. The North is a desert plateau. The Somalis subsist primarily by exporting livestock, animal skins and bananas to Saudi Arabia and Italy, the country's principal trading partners. The nomads' only real source of income is his animals. Somalis generally sell herds and hides in order to buy tea, sugar, salt and clothing. But recurring fighting and drought has claimed entire herds, and has forced thousands of nomads into refugee camps.

The refugee problem has escalated elsewhere in Africa—in Sudan, Tanzania, Zambia, Mozambique, Zaire, and Cameroon. Currently there are 2-4 million African refugees and displaced persons. The plight of Somali refugees began receiving world attention in January when Steffan Bodemar, representative of the U.N. High Commissioner for Refugees in Mogadishu (the capital), proclaimed: "This is the largest number of refugees in any one country in the world. It is impossible for Somalia to absorb this number without very substantial international assistance. For 1980, we only have about one-third of the food requirements. On top of this, there is a situation which is growing all the time."

One camp in the south houses more than 40,000, Africare has found. The agency is seeking U.S. government funding to provide social services, four temporary hospitals and technical experts to help build water systems, pit latrines and food storage facilities. Refugee families now must drink from unsafe ponds and live in unsanitary squalor. International relief workers sent to Somalia are reporting widespread incidence of tuberculosis, malaria, dehydration and dysentery.

The chief concern remains enough emergency food shipments to avert a summer famine. At this writing, a supplementary food bill was pending in the U.S. Congress.

To date, the United States has provided 77,403 tons of food, mostly rice, sorghum, corn, dried milk and vegetable oil, valued at $21.8 million, as well as medicines, tents, blankets, plastic sheeting, water tanks, pumps and other items valued at nearly $12 million. In addition, Italy, Iraq, the European Economic Community, and the U.N. World Food Program have provided food and supplies. Despite these efforts, Somalia needs over 170,000 tons of food to ward off starvation.

Somalia stands to benefit from a $50 million special Africa refugee request now before Congress as part of the Fiscal 1981 budget. But this assistance may not be forthcoming until the fall because of the federal squeeze on spending. Also the Administration has asked for nearly $120 million in a supplementary food request, which could be used to help refugees in Somalia, Sudan, Zambia, Cameroon, Zaire and other countries.

> "The Somali government is stretching its meager resources to accommodate the growing number of destitute people."

The Somali government is stretching its meager resources to accommodate the growing number of destitute people. The government has established a refugee commission and conducted clothing drives.

Because of the number of children and mothers living in the camps, the United Nations Children's Fund (UNICEF) has joined with the U.N. relief commissioner in a $120 million appeal for food and other assistance. UNICEF has started a $7 million effort, which includes opening 24 supplementary feeding centers and providing health equipment for community health clinics and educational materials for 33,000, according to UNICEF spokesman Johanna Grant. Grant says water and sanitation facilities are desperately needed.

After a visit to several northern camps, a UNICEF worker reported to New York headquarters: "Most people in the camps are living on the edge of life, threatened with the prospect of death—usually slowly through starvation or illness."

So far, private appeals for contributions have met with apathy among the world's developed nations, particularly the United States. "So far there has been almost nothing, in terms of private contributions, except for the Cambodia relief effort," Grant says. "Americans have not been impressed with the size of this problem. I don't think the general public has any concept of the danger." Meanwhile, UNICEF is trying to rally contributions through New York.

In 1979, AID provided $15 million to help thousands of Somalis begin rebuilding their herds. Other AID assistance went toward improving rangeland and livestock production, and initiating rural health care and housing for resettled nomads. Last year, American aid to Somalia for food and development activities reached $36 million.

Somalia is one of the poorest countries in the world. The average Somali earns slightly over $110 a year. His life expectancy is 41 years. Thousands of children die each year, victims of tremendous poverty and poor health care.

The livelihood of the average Somali is linked to the number of animals his family owns. Livestock is the basic medium of exchange in the rural areas where employment is in short supply. The number of animals dictates social standing, even how soon a man will be allowed to marry. Now with war and drought allying against him, and his herds dying off, the Somali looks to the future with despair. ☐

Emmett George is a public information officer in AID's Office of Public Affairs.

WOMEN AT WORK

Opportunities and need for work with pay are on the rise. But "women's work" at home remains the same.

by Kathleen Newland

Both as a fact and as an ideal, the division of labor that places most men in paid labor and most women in unpaid, household labor is breaking down. Nearly half the world's adult women are in the labor force—a category that excludes women who do only unpaid work at home. The view, never very accurate, that employment outside the household is a secondary role for women is therefore increasingly at odds with the facts. Awareness of the major role that women play in the labor market is slowly beginning to make its way into the arena of public policy. National and international conferences, reports, resolutions, and programs have addressed themselves to the new realities of women's employment.

Amid this furor of activity, one issue remains so untouched that one can easily conclude that it represents the eye of the storm: the sharing of unpaid, household labor between women and men receives only a fraction of the attention given to equality in formal employment. If women are to take full advantage of newly won access to the formal labor market, men must increase their share of the essential work that goes on outside of it. Otherwise, equal opportunity for women will turn out to be a recipe for overwork.

The recent trend toward greater participation in the labor force on the part of women is most advanced in the Western industrial states and the Communist countries in Eastern Europe and East Asia.

In developing countries (except for Asian communist nations), the record of women's employment is much more diverse and considerably more difficult to document. Part of the difficulty lies with the unreliability of employment statistics. Labor force statistics tend to overlook many women workers. It is especially difficult to keep accurate tallies of self-employed workers, nonsalaried workers, and unpaid family workers—and in all three of these categories Third World women abound. For example, in

Poor women must tend to their chores and care for their children at the same time.

Botswana, Nepal, and Tanzania, more than 80% of the female labor force is self-employed. Less than 2% of the working women in Sierra Leone are salaried employees. And in Gabon and Turkey, eight out of ten work unpaid in family enterprises.

Subject to these limitations, it is possible to identify some trends in the number of women working for pay in groups of Third World countries. Employment opportunities for women have expanded greatly in several Asian and a few Latin American countries as transnational corporations and domestic, export-oriented industries have established labor-intensive manufacturing plants that depend on low-paid female labor. In countries such as Hong Kong, Malaysia, Singapore, and South Korea, the development of the textile, clothing, and electronics industries has produced a rapid expansion in female employment, though the quality of the jobs offered to women is in general desperately low.

In most of Latin America, by contrast, the development of industry has been capital-intensive, limiting the number of jobs available in the modern sector. Intense competition for these few jobs combined with a general climate of sex discrimination in employment has meant that most of the available jobs go to men. Agricultural development in the region has also been capital-intensive. As a result, in much of the region women's involvement in the formal labor force has stagnated or even declined.

In Africa, South Asia, and most of Latin America, female employment hinges on two conflicting pressures. On the one hand, job creation has failed to keep pace with the growth of the labor force, thus heightening competition for formal employment, in which women typically lose out to men unless they are much cheaper to hire. On the other hand, ever-increasing numbers of women are compelled to work for pay. The escape valve for this irreconcilable conflict is, increasingly, self-generated employment in the informal sector, particularly in occupations such as street vending or domestic services.

In much of the Third World, the informal sector has come to rival or surpass formal employment as a source of jobs for both men and women. It is the faster-growing segment of the economy in many African cities, involving 50-60% of the labor force.

Despite some improvements, particularly at the professional level, women workers remain concentrated in stereotyped jobs with low pay, low status, and little opportunity for advancement. With this combination of disadvantages, why are more women working for pay, or seeking to do so? One important element among the negative factors forcing women into the work force is the disintegration of families as a result of deepening poverty. In a country such as Bangladesh, which presents perhaps the clearest example of this phenomenon, the extended household is the ideal family structure. Traditionally, the women of the extended family work in seclusion within the family compound to service and maintain the household, while the men work the fields or pursue some other occupation in the public world outside. This ideal is so strongly held that women are allowed very few opportunities for formal employment. Unfortunately for Bengali women the ideal and the economic reality are increasingly at variance. Joint families, which in theory can be relied upon to care for their weak or disinherited members, can actually be maintained only by the economically secure. The strain on agricultural resources relative to population in Bangladesh has produced a strong trend toward nuclear or even fractional households. Few families can afford to support a widowed daughter, sister, or sister-in-law. In a Bengali village studied by Mead Cain of the Population Council, for example, only 15% of the households were joint ones, and nearly one-third of the village's widows were engaged in a grim struggle for existence as wage-earning, "independent" heads of households.

The situation in Bangladesh illustrates several of the negative pressures that are forcing increasing numbers of women to work for pay. Increasing poverty is the most obvious of these, not only because it contributes to family disintegration, but also because poverty makes it more difficult for traditional families to survive on men's earnings only. Additional pressure is associated with the growing number of households in which women are the only breadwinners—a trend fueled not only by poverty but by migration, by rising divorce rates, and sometimes by conscious choice. The insecurity of dependent status is daily illustrated to women in many parts of the world, wherever they live their lives only a man's heartbeat away from destitution.

Urbanization cuts women off from the means of production available to rural dwellers. In the urban setting, women are often unable to gather fuel, grow crops, or forage for other necessities in the surrounding countryside. At the same time, new needs associated with city life present themselves. Both the need to purchase goods and services that they could produce themselves in a rural setting and the cash requirements particular to city life help explain why more urban than rural women work for pay. . . . Most developing countries are experiencing extremely rapid urbanization, a trend that guarantees that more women will enter the formal labor market.

But the trend toward greater participation in paid labor on the part of women has not been matched by an increased involvement of men in unpaid work. The household work of women in poor, rural communities is extremely arduous. It typically involves heavy physical labor with primitive manual tools. Food production is often a major component of women's work in rural settings, and food processing is almost always a major task. Mead Cain discovered, for example, that women in Bangladesh spend nearly 25 hours a week in rice processing and other preparation. Ruth Dixon of Resources for the Future has pointed out that a woman in rural Pakistan spends more than 14 hours a day working to meet her family's basic needs.

The importance of this kind of daily labor is underscored by the findings of an (International Labour Office) ILO study in Upper Volta. ILO staff workers there observed that family nutrition deteriorated during the rainy season, when nutritional needs were highest, because the adult women were too exhausted from agricultural work to cook. The major constraint on adequate nutrition at this time of year was not the food supply but the supply of female labor.

Sociologist Joann Vanek has observed that "the allocation of work in the home continues to be shaped by deeply ingrained ideas about the role of the sexes." In no area are these ideas more deeply ingrained than in the area of child care. The firm identification of infant and child care as women's work is no doubt based on the biological role of the nursing mother—but it extends far beyond the breastfeeding stage. The responsibility is not a light one. The world child-woman ratio, a statistic that gives the number of children under five years of age for every 1,000 women aged 15 to 49, is estimated at 552 in 1980. The ratio of children to women is higher in developing countries. On a worldwide basis, therefore, every other woman in her prime productive years has a toddler to care for.

Time-budget studies show that child care occupies little of rural women's time, usually 10% or less. The reason may be that the supervision of children is not seen as a separate activity. It occupies the same time and space as do other

Household work can be arduous. For the poor it centers on food production and processing.

tasks. Also, poor women may find their time so thoroughly occupied with meeting the basic physical needs of the family that child care as a distinct activity is an unaffordable luxury.

In assessing the effect of children on women's total work load it must be remembered that children can shoulder some of the responsibility for household maintenance, starting at quite an early age, to lighten their mothers' work loads to some extent. An ILO report on the condition of rural women in Zaire cites a survey in one province, which showed that girls aged 10 to 14 carried a work load equal to 55% of a full-grown woman's—this in a setting in which adult men do only one-third as much work as adult women.

The impact of children is very different in a setting where formal workplaces are physically separated from the home. Child care acquires a concrete opportunity cost when it becomes incompatible with other kinds of work, when women must choose whether to stay with their children or go out to work.

Carrying the major responsibility for child care and other unpaid labor handicaps women in the formal labor market. The second shift at home competes with the demands of the workplace for women's time energy, and attention. As more women around the world have started working for pay, out of choice or necessity, the traditional division of labor has lost its definition. Men no longer monopolize gainful employment outside the home, even in theory. But while this change has become firmly established, women have retained an unwilling monopoly on unpaid labor within the household. Only one side of the ancient division has broken down. The result is a pronounced imbalance in male and female work loads, with unhappy consequences for women, men, and children. □

This is excerpted from "Women, Men and the Division of Labor," a study recently published by the Worldwatch Institute, Washington, DC. Kathleen Newland is a senior researcher with Worldwatch.

Time Spent on Daily Domestic Activities by Women in a Pakistani Village

Activity	**Time Spent** (hour)	**Proportion of Waking Time** (percent)
Care and Feeding of Livestock	5.50	35
Milking and Churning	1.00	7
Cooking	1.75	11
Carrying Food to Fields and Feeding Children	1.50	10
House Cleaning and Making Dung Cakes for Fuel	.75	5
Carrying Water	.50	3
Child Care	.50	3
Other Domestic Chores (inc. food processing, crafts)	3.00	19
Afternoon Rest	1.00	7
Total Waking Hours	15.50	

Source: Ruth Dixon.

ON WOMEN & CHILDREN

by Michelle Hibler

Having children gives Third World women power and status—a reality that inhibits population control.

Studies of women's roles or women's status and fertility have multiplied in recent years. Now, halfway through the Decade for Women, some of them are yielding results—information about women's place in society, their hopes and aspirations, and about how and why they make decisions about family size. All point to the complexity of the reasons behind fertility decisions.

"Womanhood is nothing to be happy about, though I don't regret because I married, but women have a lot of work to do, especially when they get married. Children cause a lot of work. In fact, the work for them isn't tiring, but a lot of work at home and commitments are tiring, and these things men don't care very much about . . ."

So spoke an old village woman in Kenya in the course of an interview conducted by project researchers of the Office of International Science of the American Association for the Advancement of Science (AAAS). Their report, *Village women, their changing lives and fertility*, sought to contribute to the knowledge of the impact of development on women's roles and on population.

Many planners have seized upon education in the attempt to get a quick fix on the population problem, but how education and fertility interact is not yet fully understood. Education exposes women to new kinds of information, and by removing them from their family surroundings, can bring about a change in self-image, fostering different values and aspirations. It can delay marriage and, in some cases, inhibit it altogether by reducing marriage prospects. It can open the door to employment outside the home, and trigger social and geographic mobility. Literacy certainly facilitates the spread of birth control information and increases knowledge and understanding of various contraceptive methods.

The more education a woman has, the more likely she is to work outside the home. But how does employment itself affect fertility? The prevailing theory is that the more difficult it is made for a woman to care for her children and home while working, the fewer children she will have—unless of course she abandons work.

Participation in the modern labour sector appears to substantiate this view, as most urban jobs are not compatible with child care. They also expose women to new ideas and people, remove them from family influence, and help to change family dynamics by calling for greater involvement of husbands in household work. Studies on the value of children have confirmed that women's employment affected her status in the family, which in turn affected her fertility decisions and desires. It was also found, however, that the location of the job and the occupational category—professional vs. manual or service jobs—were more important factors than simply working.

In practice, however, most women in developing countries are engaged in traditional occupations—agricultural work on family farms, crafts, produce marketing—that seem to have little effect on fertility because they do not conflict with child care. This is particularly so where extended families can provide child care.

Both education and work opportunities increase with urbanization.

In Korea, a study of how the changing role of women since 1945 has influenced fertility behaviour concluded that a degree of urbanization—down to the small town level—affected the degree of egalitarianism in decision-making. The more "modern" the wife's role—defined in terms of role perception, communication, decision-making and participation—the fewer children she tended to have. Interestingly, these "modern" women often wanted as many children as their traditional counterparts, but did not carry out their desires.

Education and work experience were the major factors influencing modern role attitudes and more egalitarian husband-wife decision-making. Age at marriage and the level of education were the most significant predictors of fertility levels in Korea, and age determined the practice of contraception.

Still, the most important element in the fertility equation is probably woman's power or rights within the family.

In many countries and societies, women begin life unequal. The birth of a daughter is often greeted with disappointment, or as an old Korean proverb would have it: "A daughter lets you down twice; once when she is born and again when she marries".

Born unequal, girls grow up unequal. It has been shown that they feel the pinch of food scarcity earlier, more frequently, and more severely than their brothers. In Bangladesh, for example, the mortality rate of girls under five is 30 to 50% higher than for boys the same age. Fewer girls attend school, and while more women are now attending school, they still account for two-thirds of the world's illiterates.

Girls are also married as unequals. Although most countries have set a minimum legal age for marriage, girls in traditional societies are often married young, to a partner chosen by their parents. As the husbands are generally older, the girls' subordinate position is compounded.

Thus, in many parts of the world having a large number of children is the best available means women have of meeting their own ends, economic as well as social. As their other activities are overlooked and underrated, childbearing becomes women's major source of status. As long as no acceptable alternative roles exist, it is foolish to believe that their fertility behaviour can be modified.

It is also naive to believe that it is possible to change an aspect of society such as the status of women without major social evolution in other areas as well. Policymakers can only facilitate the changes underway by removing the tangible barriers that limit women's access to education, work, and personal autonomy. ☐

This is adapted from an article by Michelle Hibler, editor-in-chief of "The IDRC Reports," published by the International Development Research Centre of Canada.

"Tissue culture breeding" may revolutionize farming.

CUSTOM TAILORED CROPS

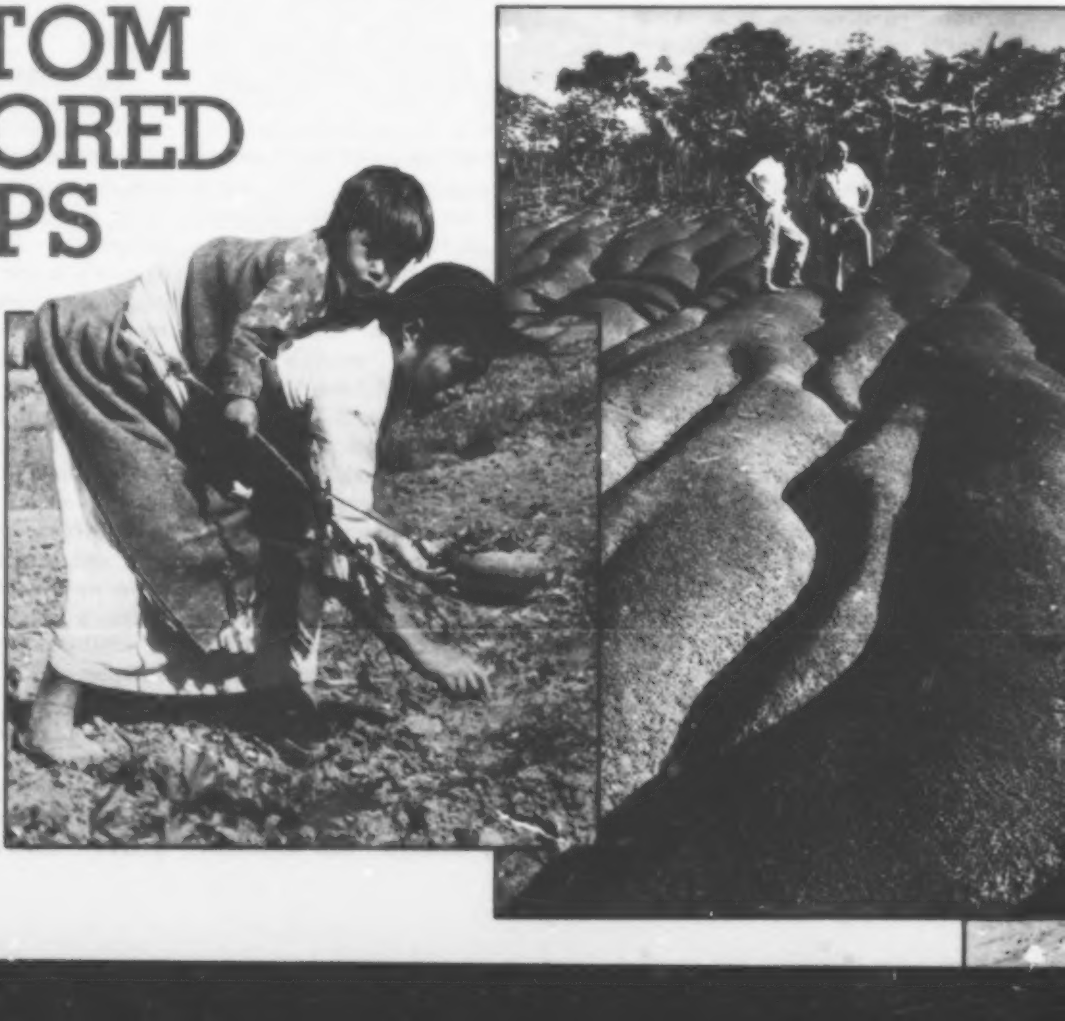
by John G. Blair

New applications of a 10-year-old process, once used to duplicate especially beautiful flowers, may revolutionize world agricultural development. Called "tissue culture breeding," the simple and economical laboratory process promises to enable scientists to reproduce plant varieties tailor-made for specific local environments—frost-resistant wheat, tropical potatoes, salt water rice, and millet that thrives in the desert, to name just a few.

Tissue culture breeding, sometimes referred to as compressed evolution, permits a scientist in a matter of months to develop a mutant, stress-resistant plant that might not occur naturally for 10,000 years, if at all. Murray W. Nabors, 37-year-old Colorado State University botanist and a leader in this genetic research, describes the chain of events: first a tiny piece of plant is used to grow millions of identical plant cells (clones) in a laboratory culture. A special hormone formula causes this reproduction, "instructing" the clones to form a large mass called a "callus." Botanists often stop at this stage, using a gyratory shaker to separate the clones from the callus for eventual greenhouse nurturing of the cells into identical plants. However, scientists, trying to identify and reproduce specific spontaneous mutations useful to farmers, carry the process further.

Once the shakers have disintegrated the callus into a solution of up to 40 million individual cells, the scientists subject the clones to some types of stress, by adding salt, creating nutrient imbalances, high or low temperatures, even drastic reduction of water. After they introduce the selected agent into the laboratory flask, approximately 98% of the cells die.

Now the scientists turn to the surviving 2%. Hormore stimulants are added again to make these rare cells grow and divide until they make up the entire culture. By continually repeating the process, researchers can develop a plant culture tolerant to conditions that meant certain death to a majority of earlier clones. The cells are then separated, treated with hormones so that they develop roots and leaves, and planted. The



surviving crop (about half) flourishes under what normally would be considered adverse conditions.

Nabors asserts that tissue culture methods could be used in breeding programs involving such food crops as wheat, rice, oats, barley, lettuce and tomatoes. What is basically involved, he declares, is "manipulating the chemicals of the medium and trying to convince the cells that they are really embryos."

Dr. Tejpal S. Gill, of AID's Office of Agriculture, calls Nabors' work an agricultural breakthrough with "tremendous potential."

"Tissue culture breeding," he says, "is a tool that can be used by just about every developing country. Only the imagination is the limit. We will be able to produce plants that will grow in low and high temperatures, plants that will be resistant to diseases. We have hardly begun to think of the possibilities."

Nabors agrees. He suggests that in the future, tissue culture laboratories might be set up "to meet the needs of growers in different parts of the world. Perhaps in India, they might want to introduce corn into a new area with a known water supply, known temperature extremes, and so forth.

"Samples of the plant or its seed would be sent to the laboratory, and for a standard fee the lab would develop a line of corn tailored to the environment of that area."

Tissue culture breeding can be "a step toward the economic independence of developing nations and of the individual farmers within those nations," he asserts. "Crops that require less than normal environmental modification are more economically and more easily grown. Yields on land that is arable now should increase; land at one time not arable can be brought into cultivation." Years of drought should become less devastating, he adds, and farmers should become more willing to risk planting. Not only would energy-efficient crops that increase food production improve a country's physical well-being, but would also free funds for other development projects.

Some of the tissue culture possibilities are extraordinary. By subjecting plant cells to low temperatures, a laboratory is likely to develop a mutant strain especially resistant to frost. This could result in extending the growing period of wheat, for example, 15 to 20 days at

either end of the season. For farmers in the northern latitudes, that might mean two wheat crops a year instead of the customary one.

Even more spectacular results may be possible for dryland farming or crop production in saline ground. According to Nabors, "approximately one billion hectares or about one-third of all potentially arable land on the earth's surface could profit from either irrigation or drought and salt-resistant plant varieties."

Noting that irrigation already is taking four-fifths of the world's fresh water supply during the growing season, Nabors discounts the possibility of providing enough of the precious resource to make arid land productive. Moreover, there is mounting evidence that repeated irrigation cycles cause salt build-up through evaporation. Crop production on about 25% of all irrigated land is believed to be affected by the accumulation of minute particles of salt left by even the "purest" fresh water irrigation.

Arguing that "it is cheaper, more economical, and in the long run, smarter to modify the plant to suit the environment than it is to modify the environment to suit the plant," Nabors says that by using tissue culture techniques, scientists in a relatively short time might be able to produce thousands of identical plants especially suited for these arid or salt-ridden lands.

In his initial tissue culture experiments with oats and wheat, Nabors has bred cultures that will tolerate up to five times normal salt levels. Although the off-spring of most salt-tolerant cells usually are shorter than normal plants, this characteristic could be a harvesting advantage for cereal grains. Once perfected, the new mutant variety of oats and wheat could significantly boost production currently being curtailed by salinity evaporation in Mexico, Pakistan, India, and many Middle Eastern nations.

Nabors' research also suggests that in addition to adapting cereal grains to soil already damaged by salinity, tissue culture techniques might also allow the oceans to be tapped for irrigation. Already plant scientists at the University of California at Davis are screening the world's collections of barley and wheat for plants that could flourish in salt water. The California scientists are using conventional research methods.

"We will be able to produce plants that will grow in low and high temperatures, plants that will be resistant to diseases. We have hardly begun . . ."

Nabors thinks tissue culture selection could more quickly locate a plant form that could safely partake of the sea's rich nutrients. But it is likely that plant scientists will have to settle for crop varieties that can survive a mixture of 50% sea water and 50% fresh water, he adds. Nabors believes there's a limit to the amount of salt that most plants can tolerate, even with tissue culture manipulation.

Botanists hope to overcome another soil problem with genetic tinkering—aluminum toxicity. It inhibits maximum crop production throughout the world, but especially in the tropics. Experts have realized for decades that un-neutralized aluminum, in concentrations as low as one part per million, blocks root growth. Lime, the most popular agent to offset aluminum's toxic effect on root hairs, is expensive and often ineffective.

Lime generally penetrates the soil only as deep as the plow's furrow. And roots cannot penetrate soil beneath the lime because of the overpowering aluminum concentrations. While frequent rainfall may make deep root systems unnecessary, a dry period of a few weeks could exhaust the water near the surface and destroy an entire crop.

For farmers (of millions of hectares) in Central Africa and in the South American nations of Colombia and Brazil, new aluminum-tolerant crop varieties developed through tissue culture research offer a solution to a seemingly losing battle with soil problems. At the International Center for Tropical Agriculture (CIAT) in Colombia, experts consider such experimental work particularly relevant for the Llanos beef project. The scientists hope to turn the region's vast plains into rich cattle pastureland by finding a suitable species of grass capable of thriving in the aluminum-ridden soil.

Other international agricultural research centers in Peru, the Philippines, Mexico, India and Nigeria have expressed interest in tissue culture techniques. Virtually all agronomists would agree with authorities at Peru's International Potato Center that tissue culture techniques should be considered as additional tools rather than a replacement for more conventional breeding practices. Yet there is hope that knowledge of the new process will begin to effect worldwide experimental research within the next 10 years.

Soaring petroleum prices have stimulated international interest in Nabors' experiments. As early as 1973 agronomists Pimentel, Hurd, Bellotti, and Forster noted in a *Science* magazine article: "Green Revolution agriculture uses high energy crop production technology. . . . In the United States we are currently using an equivalent of 80 gallons of gasoline to produce an acre of corn. With fuel shortages and high prices to come, we wonder if many developing nations will be able to afford the technology of U.S. agriculture."

Sylvan H. Wittwer, writing in last October's *BioScience* magazine, also complained that the United States' bountiful harvests are too dangerously dependent on fossil fuel and chemicals to be copied in the Third World. Declaring that "we in the U.S.A. must irreversibly follow a transition from nonrenewable to renewable resources," he said, "This may not be true of many agriculturally developing countries, where there could be a golden opportunity to skip, at least in part, the fossil-fuel era."

According to the Consultative Group on International Agriculture Research (CGIAR), international plant improvement centers are now turning more of their research time and money away from energy-intensive Green Revolution crops. Instead, they seek to develop "plant types and practices to benefit the small farmer, who must operate without the benefit of controlled irrigation or much help from fertilizers and pesticides."

By combining tissue culture and traditional breeding methods, researchers can expect to considerably reduce the cost of producing new crop types suited to specific areas. Nabors notes, for example, that an estimated 480 new or improved varieties are released to growers every year at a development cost of over $400,000 each. Approximately eight to 10 years of breeding research also must be done before approval.

Tissue culture breeding, the Colorado State botanist says, could easily cut two to three years off a research timetable, or approximately $150,000 per variety. Even if this savings is reduced to $50,000 per plant, the cost of the programs in dollars alone would be decreased by about $24 million.

"It is cheaper, more economical and, in the long run, smarter to modify the plant to suit the environment, than . . . the environment . . . to the plant."

In terms of laboratory and greenhouse requirements, the difference that tissue culture techniques can make is striking. A single flask containing a pint of wheat cell suspension contains 40 million potential plants, or the equivalent of 3.2 hectares of field grown wheat. A small room could easily hold 35,000 such vials. The researcher could therefore have at his fingertips the genetic equivalent of 112,000 hectares of wheat or 1.4 billion possible wheat plants!

Even if a researcher would devote such a large area to field testing for specific mutations, he would have no way of knowing where to find rare genetic material or when it is produced. The one-in-ten-million plant that possesses the tolerance investigators are looking for could easily be overlooked. Field selection to discover the plant, such as watering with salt concentrations, could be time consuming, expensive and fruitless. Although the process might be speeded up by using seeds or seedlings instead of adult plants, tissue culture breeding still surpasses more conventional methods in terms of time and money.

According to Nabors, "tissue culture may enable the investigator to rapidly and economically obtain the plant he desires, and then return to the field for whole plant studies." The ability to produce huge quantities of plants from cell cultures within months contrasts sharply with the experience of agronomists in the field who feel fortunate to find just one such plant in the same time.

Tissue culture breeding also can be used to rapidly clone mutant plants located by conventional methods. If, for example, a breeder discovers a single drought-resistant wheat plant in Mexico, the normal reproduction process might take years. Tissue culture experiments would bypass the need to collect seeds and replant the stock over and over until there are enough plants to warrant full investigations. Thousands of the mutated plants could be reproduced and grown in laboratories or greenhouses within months.

For people concerned about the threat of world starvation, tissue culture breeding offers hope. A growing number of agronomists around the world are examining the process. AID has published a general description and report of Nabors' work entitled "Rapid Crop Improvement Using Tissue Culture Techniques: A new method for the production of stress tolerant, energy efficient crop plants." Ten U.S. universities have launched major tissue culture research programs. In addition, corporations, including Union Carbide, DuPont, and Weyerhaeuser, are using approximately the same processes in an attempt to

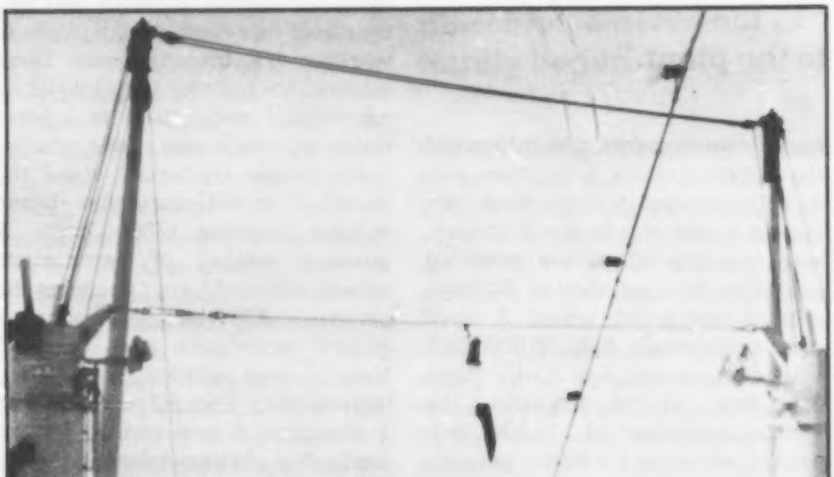
While no panacea for the farmer, tissue culture breeding opens new vistas. It may mean two wheat crops in northern Canada instead of one; potatoes and tomatoes growing in tropical lowlands; production croplands in the American southwestern desert; and rice in Asia's salty marshes and estuaries. All this and more could happen. ☐

John G. Blair is editor of "International Exchange News," a publication of the Washington International Center, Meridian House International.

SUEZ CANAL: Growing Bigger And Better

by Alexanderina Shuler

U.S. helps rehabilitate and modernize the 110-year-old channel.



A ship negotiates the Ballah by-pass on its journey through the 103-mile Suez Canal.

As a ship sails, the Suez Canal is 5,129 miles from the port of New York. Shaving costly miles off shipping routes around Africa, the 110-year-old channel is economically important to the United States. It also means $700 million a year in revenue for Egypt—income the country needs.

The canal also is contributing to peace in the Middle East. The Egypt-Israel peace treaty specifies that the canal be open to Israeli ships.

Recognizing its importance to U.S. economic and political interests, the United States has embarked with Egypt on an effort to modernize the Canal.

Closed for eight years by the Arab-Israeli wars in 1967 and 1973, the canal reopened five years ago. But in the interim, the supertanker was born; international shippers had called for a vessel that would make up for the extra cost of going around Africa. In reopening the canal, the Egyptians faced not only the enormous task of cleaning sunken ships and other debris out of the 103-mile canal, but also major renovation to accommodate the new ships. Widening and deepening began in 1977 to handle upwards of 200 ships a day.

More—and bigger—ships on the canal mean greater safety risks, especially at night. A collision can shut down the canal for days. Egypt has turned to U.S. technical ingenuity and AID to help insure against catastrophe in the canal.

VTMS (Vessel Traffic Management System) is a modern electronic system used in such U.S. ports as San Francisco and New York. It will be used in the Suez Canal as well, but with a unique twist. What makes the Suez system special is that its four components—radar, Loran-C radio, voice communications and computer equipment—are being put into place as an integrated unit, making it the world's first complete system. Expected to be working by the end of this year, when the first phase of the Egyptian General Organization for Industrialization's grand plan for the canal is finished, the VTMS will continuously monitor every vessel in the canal. A Suez Canal Authority pilot will board every ship entering the canal, either at Port Said in the north on Port Terfik in the south, with a special portable radio.

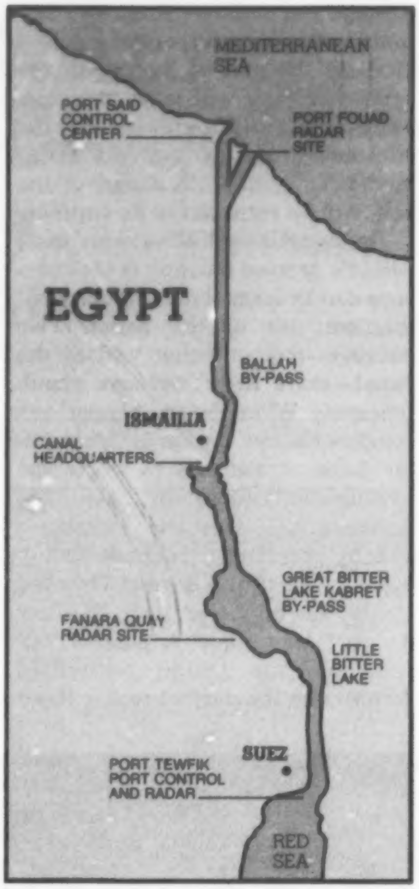
Radar stations in either harbor will track a vessel only up to a certain point. When the ship is out of radar range, the radio will take over, relaying signals to a central computer at Ismailia and two substation computers, one at Said and the other at Terfik. There, the ship will show up on color screens with its own identification tag. The information can be used with computer-stored data such as vessel type, weight and size, cargo description and mechanical history of the ship, to be transmitted by phone to the pilot to help him steer the ship through the passage. A backup system insures no interruptions in service. At the end of the canal, the radio and pilot will leave the ship, another pilot will board and take the ship out of the harbor with radar guidance. Finally, command of the ship will be returned to its captain.

The significance of knowing each vessel's precise location is that convoys can be formed to make the most efficient use of the canal. Two convoys—one at either end of the canal—start their journeys simultaneously. When the northbound one reaches Kabret bypass in Great Bitter Lake, it anchors to allow the southbound convoy to pass. The northbound convoy then continues and by the time it reaches Ballah bypass, a third convoy—headed south—has anchored there to allow the northbound fleet to pass. VTMS will help the traffic controllers orchestrate the perfect timing these maneuvers require. It also will provide a warning if there's danger of a collision.

The concept is relatively young. Ten years ago, radar in San Francisco harbor helped guide ships in and out of the harbor. A more sophisticated system for the harbor was in the planning stages when two oil tankers collided in 1971. That added impetus to passage of the U.S. Ports and Waterways Act, authorizing the Coast Guard to operate vessel traffic service. San Francisco was the test site for the advanced radar system, with equipment installed by the AIL Division of the Eaton Corp. The company soon found itself setting up similar systems in Valdez (Alaska), New York and Houston-Galveston.

AIL's expertise in vessel traffic radar was considerable, but not enough for what the Egyptians had in mind. That's when the firm joined forces with Megapulse Inc. and the

A modern electronic system, part of which is displayed above, will help guide traffic through the modernized canal.



General Electric Co. Separately they couldn't make the grade, but together they had just what the customer wanted. After extensive shipping, the Suez Canal Authority offered a contract to AILTECH Commercial Systems, the Eaton group created to manage the VTMS program. Subcontracts went to the AIL Division for the radar subsystem, to Megapulse for the Loran-C subsystem and to GE for the voice communications subsystem. Money for the equipment and related training of 18 Egyptians to operate and maintain the system, came from AID's commodity import program. AID is providing $17.7 million in loans; the canal authority is contributing $1.2 million.

"We've built the Egyptians a marvelous tool," says Jules Freundlich, AILTECH general manager, emphasizing that the VTMS "is only an information system," one that requires skilled operators to run it and to make decisions based on the development of their own procedures. It also can be revised and updated easily as the old manual system is phased out and the new one phased in. The target date for everything to be in place—all 350 tons of equipment from radar towers to computer terminals—and for all complementary systems to be operating is 1983.

Everyone stands to gain from the ambitious project. The VTMS will be a showcase for the three U.S. firms, attracting international recognition and, more likely than not, business. The canal will bring additional money into the Egyptian government's coffers. Western European countries will save shipping charges by eliminating the long runs from the petroleum-producing countries around the Cape of Good Hope. Britain is saving as much as $150 million a year; Italy and Greece estimate savings of up to 60%.

Rehabilitation and modernization of the Suez Canal is a monumental task. But after all, canal traffic controller Aly Abrahim points out, "We're the builders of the pyramids." ☐

Alexanderina Shuler is editor of "Front Lines," AID's employee newspaper.

AID HELPS EGYPT BUILD ITS GENERATING POWER

By the time Egypt finishes spending the $450 million AID has allotted to that country to build, expand and improve its power plants, generating capacity will be up by 35%.

It's just one part of the government's overall development effort, but an extremely important one since electricity is a prerequisite for industrial growth—a goal Egypt is striving to achieve to help meet the basic needs of its people and their expectations for a better life.

Fiscal 1980 marks a turning point in the financing of power generation projects funded by AID. Last December, the Helwan power station—22 miles south of Cairo—was turned on. And the Talkha plant is ahead of schedule.

The projects will help meet immediate power requirements.

Another milestone was reached just two months ago when the cornerstone of the Ismailia power plant was laid. The plant, located about midway on the Suez Canal, not only increases that area's power generating capacity, but also is helping restore economic activity to the war-damaged canal zone. Commercial operation expected to begin in 1983.

A recently signed AID grant for $100 million is paying for engineering services and equipment for the Shoubrah El Kheima thermal power plant. Other donors—the World Bank, the European Economic Community—are contributing toward what will be the largest power plant in Egypt.

In addition to these landmark events, AID funds are helping the government rehabilitate the war-torn power distribution systems in the three Suez Canal cities of Port Said, Ismailia and Suez, and is backing a major project for urban electric rehabilitation and expansion in Cairo and Alexandria, as well as in two provincial cities. ☐

Tapping Peat Reserves: A Way out Of the Energy Bind

Burning "sod" may conserve thousands of acres of forests

by Susan Super

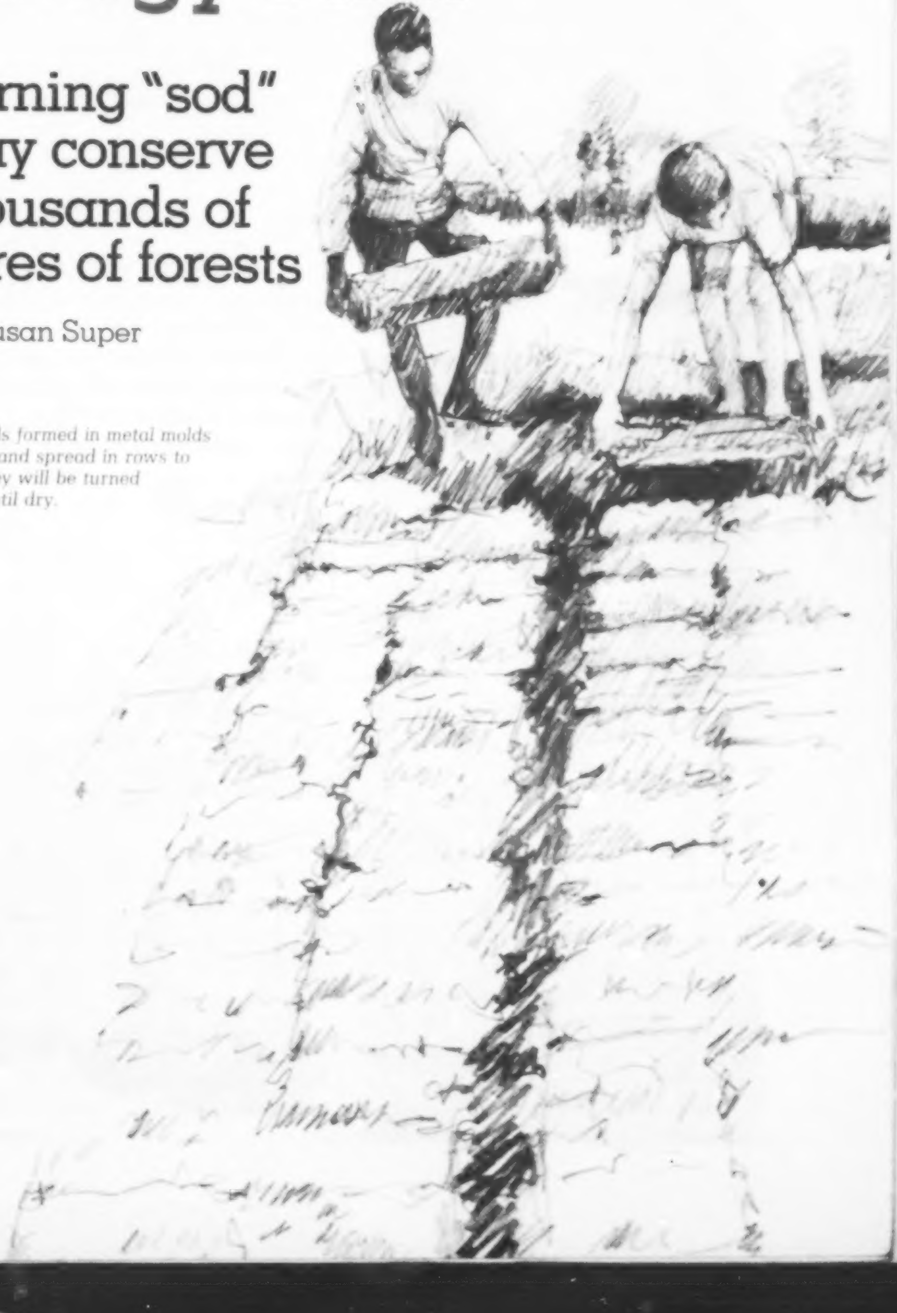
Vast peat reserves, discovered in the 1960s and only recently tapped, may give Burundi a way out of its energy bind. According to conservative estimates, the peat bogs should produce more than a million tons of peat over the next 20 years, enough to prevent the destruction of at least 150,000 acres of forest.

Through a contract with Catholic Relief Services, AID has been helping Burundi develop this valuable energy source since the late 1970s. Also involved are Ireland, Denmark and the European Development Fund. AID has proposed "Peat II," calling for $12.6 million over the next five years to continue technical assistance for Burundi's peat program and to improve forestry practices and soil conservation. Of that amount, AID would contribute $5.3 million, the U.S. Food for Peace program $3.3 million, Ireland $1 million and Burundi $3 million.

In 1969, a geology professor from Butare University in Rwanda, the late Paul Deuse, estimated that Burundi's peat deposits could yield some 300 million tons of dry peat fuel. It would take millions of acres of trees to match that amount of potential energy.

Peat has been an important household fuel in Ireland and northern Europe for centuries. Formed from decomposed vegetation, peat represents an early stage in coal development. Burundi's peat comes from papyrus deposits—as much as 80% is in the flooded basin of the Kagera River on the border with Rwanda. Techniques for the extensive drainage or underwater extraction this area requires are expensive and have not yet been perfected. However, once the methods are available, the basin could be Burundi's most valuable resource.

Meanwhile, the rest of the peat is mainly in the highlands, where a number of bogs are suitable for commercial exploitation; the peat is of high quality, the deposit is large and reasonably close to roads. Three bogs are being worked now and



Peat sods formed in metal molds are cut and spread in rows to dry. They will be turned often until dry.

others look promising. When the bogs are eventually played out, the land will be well suited to farming.

Most of the peat is now used by institutions (a hospital and secondary and technical schools), small industries (a cotton refinery, bakeries, brick manufacturers and blacksmiths) and military camps. Bogs too small or remote for commercial operation could be used by rural communities for local sale and use. "Peat II" provides for this local exploitation.

Two tons of dried peat produce the same amount of energy as one ton of charcoal, but at roughly 25% of the cost. Many users still prefer charcoal, however, because it's easy to handle and burns well. Also, peat costs almost twice as much as fuelwood. But as the scarcity of wood pushes up the price of fuelwood and charcoal, peat will look more and more attractive by comparison.

Already, Burundi's bogs are helping fill two critical needs—energy and employment. ONATOUR, the national peat office of Burundi created in 1977 to control peat production, distribution and marketing, is becoming one of the country's largest employers. During the dry peat production season (May to October), 625 workers are employed, many earning their first regular wages. A typical worksite requires 250 laborers. ONATOUR hopes to open three new bogs a year.

The first commercial peat operation started in the 1970s but was abandoned when the lack of technical know-how led to erratic peat quality and production. Later, a U.N. ceramics specialist experimented with peat for firing bricks and tiles with good results. Lack of funds shut down the project. In 1975, Catholic Relief Services began small projects to test the use of peat in rural areas. At the request of the Burundi government, the group brought in an Irish peat cutter to supervise a small peat operation.

The growing interest and need for greater support for this new venture were soon evident. In 1978, AID approved a grant of $490,000 for a pilot program—"Peat I"—to be carried out through the Catholic Relief Services, which hired project manager Joshua Walton and Irish peat technicians to supervise the three work sites. Since then, annual peat production has risen steadily, from 2,000 tons to 9,200 tons for 1979, with a goal of 18,000 tons for 1980 and 36,000 for 1981.

Developing the bogs in an environmentally and economically sound manner depends on careful preparation and production techniques. Poor drainage and management resulted in severe flood losses at one bog where exploitation began a number of years ago without adequate technical advice.

Potential work areas are selected from aerial photographs, Walton explains. If first-hand visits confirm the site as a good choice, it is mapped and samples are analyzed. If the results look favorable, teams first divide the bog into fields during the wet season, install drains to reduce the peat's moisture content, and clear and level the fields.

Peat production starts in May or June. Workers cut the peat, mash it by foot and hoe, or by machine (to give it a consistency less likely to crumble) and pack it into metal molds to form "sods" (bricks). The sods are dried in the field and turned frequently, stored in piles until the moisture content falls to 30% and transported to market or to the ONATOUR stockyards in the capital, Bujumbura.

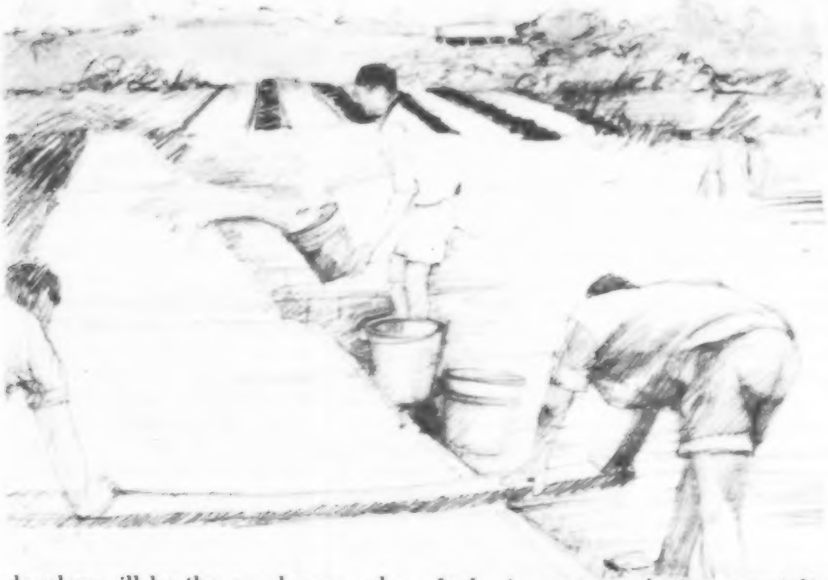
A U.S.-funded Food for Work program increased productivity in 1979 through improved morale and better diet, Walton reports. Also, the laborers' attendance picked up because an absence of more than two days a month prevented them from qualifying for allotments of bulgar wheat and cooking oil from Food for Peace supplies to supplement their income. The proposed peat project includes $3.3 million to continue similar Food for Work incentives.

Merely producing peat won't solve Burundi's energy and deforestation problems without marketing and extension work to make a quality product acceptable and affordable for consumers.

"The most difficult market to

After they cut and dry the peat, workers pack the material tightly into molds to form sods.

Workers dig, mix and haul peat by wheelbarrow to molds. Later, when dry, the sods will be taken to market.



develop will be the rural poor, who do not earn wages and who use either crop residues, dung or sticks collected by their children for household fuel," Walton maintains. "They have no ready cash to purchase peat and their current fuel is not yet scarce enough to force them to use peat."

Another obstacle to using peat for cooking and heating in Burundi is heavy smoke when the fire first starts. Although this is not much of a problem for institutional and commercial users or urban dwellers, who usually cook outside in sheds or lean-tos, the smoke literally drives rural people out of their homes in the cool, damp highlands.

The current program is taking steps toward solving some of these problems and the proposed project emphasizes more studies on ways to make peat acceptable to small users. Public reaction to a demonstration program has been good. Project workers go to marketplaces to show how peat works and to hand out free samples. Later, they visit people at home to get their opinion on the new fuel. A peat marketing specialist recently joined the project team and the proposed project includes more extension work in rural areas.

The Irish Peat Board is testing low-cost stoves made from local materials that use peat efficiently and reduce smoke. New machinery, which is expected to increase the bog's marketable production and allow more laborers to work at a site, is being tested.

Burundi's government aims to eventually analyze and chart every accessible peat bog in the country, an effort assisted by survey teams financed by the Irish and Danish.

"Peat is an entirely new phenomenon in Burundi," Walton observes. Problems stemming from that newness are being solved, with the expectation that peat soon will play a major role in conserving Burundi's dwindling forests as well as providing much-needed energy. □

Susan Super is assistant editor of "Front Lines," AID's employee newspaper.

Burundi needs alternative energy

Burundi is one of the poorest countries in Africa.

Per capita income is $90 to $120 a year, although it may be more like $40 or $50 in rural areas. Life expectancy is 39 years. This, in Africa's second most densely populated country.

Adequate rainfall and varied terrain give the country a strong natural base for agriculture, but also a growing number of people earn a mere subsistence from agriculture—many families have barely an acre to farm. One crop, coffee, earns 90% of the country's foreign exchange.

Now the land on which people depend is threatened by declining fertility and severe erosion, caused mainly by poor farming practices, overgrazing and rapid destruction of forests.

Burundi has no coal, oil or natural gas. Wood is the main source of energy for commercial and domestic needs. But only 5% of the country is still forested, and at current cutting rates these forests may not last beyond the 1980s. The depleted woodlands, perhaps 330,000 acres, can no longer check soil erosion or regulate water flow in mountainous areas.

Burundi cannot afford costly fuel imports. Transportation costs are so high to the isolated nation that imports more than double in cost by the time they reach their destination. The country desperately needs another source of energy that will give it the breathing time needed for reforestation and for correcting the problems that endanger land and water sources.

STRAIGHT ANSWERS ON FOREIGN AID

by
Peggy Streit

Recently the World Development Letter, a biweekly AID report of facts, trends and opinion in international development, devoted an issue to answering letters from readers questioning foreign assistance. Following is a reprint of that issue.

To a lady from Missouri. Ms. B.—an actual person—wrote a letter full of thoughtful, concerned, skeptical questions about U.S. foreign aid. Herewith, some of our thoughtful, factual answers. She will find some surprising and all, we hope, helpful in making an enlightened judgment about our assistance program. We are adding a few typical questions from other correspondents who also "want to be shown."

We have to work five months out of every year just to pay our taxes. Are we going to bankrupt the United States so we can support the world?

The average American pays roughly $1,575 a year in federal income tax. Of this $19 supports U.S. development programs in the Third World. And most of that $19 is spent in the United States for goods and services that mean jobs and income for Americans.

Take Missouri for example. The U.S. foreign aid program bought almost $40 million in goods, services and agricultural products in Missouri during 1978 for use in the less developed countries. Of the total, $36,966,000 went to Missouri farmers and food processors for grain and other agricultural commodities under the Food for Peace program. The balance, $3,026,977, went to Missouri manufacturers and other firms for supplies used in overseas economic development programs administered by the Agency for International Development. The foreign aid program buys more from other states than it does from Missouri: $110 million from California, $381 million from New York, $128 million from Kansas; $118 million from Texas—to name a few.

I just don't understand why we have a foreign aid program. We have a lot of poor people in the United States, too. America can take care of itself; let developing countries take care of themselves.

The days are gone when size, strength and near-self sufficiency shielded the United States from economic and political conditions elsewhere.

Progress in the Third World serves the U.S. national interest. Apart from our traditional humanitarian concerns, as these nations develop they become bigger customers for our farms and industries and a better factor in our balance of payments; they become bigger markets for American investments and more accessible sources of raw materials essential to our economy and our national defense.

For example: U.S. exports to developing countries have tripled in the past five years. These countries now buy 37% of U.S. manufactured exports. U.S. exports to developing countries exceed our exports to all of industrialized Europe and are three times greater than our exports to Japan. Some 1.2 million American jobs now depend on exports to the Third World. One out of every four acres of American farmland produces for export to those countries. Nearly half of U.S. private overseas investment is in developing countries.

The U.S. depends on Third World countries for 93% of our tin, essential to the electronics industry; 85% of our bauxite, vital to the aircraft industry; 79% of our cobalt, needed by the steel and nuclear industries.

By the year 2000, about 6 billion people—1.5 billion more than now—will crowd this planet. Nearly 90% of them will be living in the less developed countries. There—despite the progress that has been made—extreme poverty, overpopulation, environment degradation, disease, and periodic famine are still the lot of most. These conditions breed increasing violence, riots, terrorism, urban guerrilla warfare and border strife. In our own backyard we have already felt the impact of Third World overpopulation and poverty in the massive immigration of Latin Americans into the United States.

Our social security program is in trouble (no money) yet we spend $77 billion for foreign aid. (That is sick.)

We can't speak for the social security program. But last year the total for all U.S. foreign economic assistance programs added up to $7.1 billion. That is 1½% of the federal budget and one-quarter of 1% of our Gross National Product. To give some perspective, in 1978 alone Americans spent $30.9 billion on alcoholic beverages and $17.9 billion on tobacco products.

Why does our country lend millions of dollars to foreign countries at 2½% to 3% interest, yet we Americans must pay 15% to 16%.

We do extend loans to some Third World countries (not all foreign countries, of course) on easy terms—2% to 3% for up to 40 years—because it is one of the best ways to expedite their economic and social development and to benefit U.S. interests.

The sale of American grain at low interest is a case in point. Already one of every four U.S. acres of farmland produces for food exports to the Third World. Experts say that without these markets there would be a 20% to 25% loss of gross farm income and possible disaster for the American farmer, consumer and economy.

In addition, farm sales abroad create hundreds of thousands of jobs in related industries. Workers in grain elevators, truckers, shippers, those on assembly lines who make tractors, the mechanics who maintain farm equipment may not know it, but their jobs depend in part on grain sales to the Third World.

These sales at favorable interest rates are also hastening the development of poor countries that may someday be our best customers. Twenty or 30 years ago, for example, South Korea, Taiwan and Singapore, among others, were struggling to feed their peo-

American taxpayers ask some tough questions

ple. In 1950 Taiwan's per capita income was less than $100 a year. Today it is $1,750—and the country is a major purchaser of U.S. grain and other products.

Why does the United States have to carry the foreign aid load alone?
It doesn't. Although the United States contributes the largest dollar amount, most other developed countries devote a greater percentage of their wealth to economic assistance to developing countries than does the U.S. The United States is 13th down the list of 17 "donor" countries of the free world. Sweden, Norway, the Netherlands, Denmark, France, Belgium, Australia, Canada, the United Kingdom, Germany, New Zealand and Austria all earmark a larger percentage of their Gross National Product for foreign aid then we do.

If I don't pay my debts the stores cut off my credit. But with developing countries, we just keep shoveling the money down the drain. Why?
Developing countries do pay their debts. From 1945 to 1978, U.S. economic aid loans and credits totaled nearly $44 billion. Principal and interest payments to the United States amounted to nearly $22 billion by the end of 1978. Virtually all loans and credits disbursed early in this period have been repaid in full—with interest and on time, sometimes in advance of maturity. With rare exceptions, the balances remaining reflect loans that have not yet reached maturity, payments that are not yet due. In short, the repayment record has been excellent.

And it's not money down the drain: development is occurring. Many of the countries of Southeast Asia have achieved a level of development few would have predicted a decade ago. India is now surviving a drought on the strength of its own home-grown food. Population growth rates have dropped dramatically in Thailand, Indonesia, Colombia, the Dominican Republic, South Korea, the Philippines and Panama, among others. More than 30 countries are establishing their first real health care systems. Third World nations are increasingly able to borrow in private capital markets for development projects.

I read a report that came out of Washington saying that this country is giving foreign aid to 56 countries. How come we couldn't bail out one city in our own country—New York?
The federal government did "bail out" New York. The United States made direct loans to New York City totaling almost $6 billion at 6.43% to 7.26% interest on condition it put its financial house in order. The loans and interest have been repaid and the city's budget is expected to be balanced in 1981. Like the U.S.-New York arrangement, U.S. aid agreements require sound management and proper use of U.S. loans or grants. Incidentally, we provide economic assistance in all its many forms—from small to large amounts—to 102 countries.

How come we are sending millions of tons of grain to developing countries for free, yet farmers in this country are paying such high prices for grain for cattle that meat is being priced out of sight?
The bulk of the grain exported under our Food for Peace program is sold—not given—to Third World governments at roughly the same price that American farmers pay. What free grain we do send abroad helps people devastated by disaster or provides food for nursing mothers, school children and food-for-work programs.

Much of our economic assistance is designed to help developing countries increase their own farm output—thereby reducing global demands on U.S. food supplies that tend to bid up grain prices.

Why are we sending so many of our dollars overseas when there are so many things that need to be done at home?
By and large we are not sending dollars. Most foreign economic assistance over the years has consisted of food, equipment, training, expert services, heavy machinery and technology. Most of these have come from American farms, factories, universities and research institutions in all 50 states and the District of Columbia. More than a third of all U.S. economic aid has been extended on a loan or credit basis and is being repaid with interest. This means that a large percentage of money spent has gone to U.S. business and Americans for goods or services they render Third World countries. Thus, though the benefits are reaped by developing nations, the money ends up in U.S. pockets.

I see red when I read that we are sending foreign aid to OPEC countries.
The United States extends aid to only three of the 13 OPEC countries. They are Indonesia, Nigeria and Ecuador, which together provide this country with more than 20% of its oil and are considered stabilizing elements in their regions. These countries are also considered a moderating influence in OPEC.

The fact that a country has oil doesn't necessarily mean it's rich. Indonesians earn an average of $132 a year, Nigerians $500 and Ecuadoreans $740. Nigeria is a large market for U.S. goods and training services; our exports there topped $1 billion in 1978, and a vocational skills training program financed exclusively by the Nigerian government brings the U.S. $16 million a year. Ecuador is one of the smallest oil producers in OPEC with limited reserves. Unless new oil is discovered it may have to import petroleum by 1985.

In 1978 OPEC countries together contributed more than 1% of their Gross National Product to aid developing countries. Thus, percentage-wise, together they are the world's top providers of foreign assistance.

How come we are pouring millions of dollars into China, which they have no way of paying back?
We're not.

Peggy Streit is editor of AID's World Development Letter.

VIEW FROM THE WHITE HOUSE

A plea for the Third World

President Carter urges Congress to support assistance to developing countries.

Following are excerpts from a statement by President Jimmy Carter at a recent briefing for members of Congress.

For a president who wants to keep our nation at peace and not use a tremendous military arsenal that is available to me as Commander-in-Chief, it's necessary to call on the Congress to help me in meeting the challenge or the competition with the Soviet Union in various places in the world, particularly in Africa, to stop the encroachment or Cuban-engendered communism throughout Central America and the Caribbean, and to meet the challenge that remains after the Vietnam experience in Southeast Asia. This is not an easy challenge to meet without using weapons. It's incumbent on the Congress to give me the economic tools with which to meet these challenges.

This year, the Congress has not yet been willing to do so. This is not a matter of liberalism vs. conservatism because, in my judgment, it is as extremely important for a conservative who believes in human rights and the preservation of our way of life and the meeting of a Communist challenge, to do so in a bold and effective and courageous way without regard to the demagogic approach on foreign aid that might appeal to some members of a constituency. And for those who profess to be liberals, it's extremely important to protect human rights, to meet the needs of hungry people and to spread the beneficial effect of democracy and freedom and of our way of life. There is no incompatibility depending upon a philosophical point of view, nor is there a distinction legitimately to be drawn between Democrats and Republicans.

As you all know, the way that we meet these challenges in Southeast Asia, Africa and our own hemisphere is through our economic or foreign aid program.

It's (foreign assistance) varied in make-up, it's highly focused when it needs to be on a bilateral basis, and it also expands tremendously the investment of a dollar of American foreign aid or loan money to benefit us with trade, with the growth of our national product, and the beneficial effect of the impact of all the Western democratic nations on the non-aligned, sometimes uncertain, uncommitted, but searching, developing countries.

In the World Bank, a dollar that's invested from American allocations of funds by you is multiplied 50 times over. For every dollar of American money, the World Bank can lend $50 to the International Monetary Fund, which makes available very sound loans to countries, also imposes on them a rigid fiscal discipline and has saved many nations from chaos by imposing on them, in a negotiated manner, a sound fiscal policy. Sometimes the leaders of those nations privately express their gratitude to the IMF for making them do what they know ought to be done to control runaway inflation and an imbalanced budget that would lead ultimately to chaos, revolution and disintegration of the societal structure of that nation. . . .

Every time we have put a dollar in economic aid on a foreign aid basis for the last number of years, it's resulted in an increase of about $3 for the American gross national product. Our trade with the less-developed countries of the world now exceeds the trade with all of Western Europe, all of Eastern Europe, plus the Soviet Union. And, in addition to this, we can provide in a beneficial way a partnership agreement with those small and potentially friendly countries where we can be provided with their raw materials and sell them finished products, providing jobs for our own country. . . .

Let me say in closing that the easiest legislation in the world to find fault with is probably foreign aid. It's easy to demagogue the issue, and you can always find some reason at home in the 4th District of Georgia or the 3rd District in Georgia, where I'm from, to justify voting against foreign aid. But when you come down to the question—is our nation going to meet its commitment, is our nation going to be able, short of military action, to compete successfully with the Soviet Union for the hearts and minds and friendships and trade of the developing nations on Earth, are we going to be able to prove to those nations that a democratic country like ours, the most powerful on Earth, is a responsible partner for them to have, a responsible friend, with an investment that pays rich dividends, that provides American jobs, that's greatly magnified in its beneficial effect, that helps those who are suffering to have more to eat, to let them produce energy of their own that will alleviate worldwide shortages—to these kinds of questions, the answers are obviously yes. ☐

WHAT THE MEDIA SAY...

In response to the increasingly severe balance-of-payments problems of some developing countries, the World Bank has begun a new lending program that differs significantly from past policies of the Bank.

Unlike most World Bank credits, which have been used to finance specific projects such as highways or power plants, the new "structural adjustment" loans can be used to pay the borrower's foreign bills. And the loans will be made only on the condition that the borrowing countries have in place overall economic policies aimed at reducing their foreign deficit within three to five years.

—Ann Crittenden
New York Times

"Rapid change in Third World countries is tearing families apart," says Perdita Huston, regional director for the Peace Corps in North Africa, the Near East, Asia and the Pacific.

Rapid population growth, industrialization and import of foreign media products—including pornography—are three examples of things that are putting pressures on people, she said.

Ms. Huston, author of "Third World Women Speak Out," said that with the population expansion it becomes more difficult to feed families, so the men leave the land to go to the cities and find work. That leaves the women behind to care for the children and to work the land.

—Citizen Journal
Columbus, Ohio

Nearly 30% of the world's population—814 million people—cannot read or write, according to a UNICEF report which recommends out-of-school training for illiterate teenagers and adults.

UNICEF should place special emphasis on reaching women and girls—who make up 60% of the illiterate population.

—Associated Press

A major shift in Taiwan's foreign investment policy is apparently in train. Formosa Plastics Corp., the country's largest conglomerate, with $1.4 billion in 1979 sales, is about to plant its flag in Texas, starting construction in June of a $100 million petrochemical complex. This single project will nearly double Taiwan's current overseas investments. The Taipei government is now encouraging companies to put money to work abroad to secure supplies for its booming but resource-poor economy.

—Business Week

Just in the last few years, increasing attention is being given to the concepts of tree crops agriculture, especially when integrated in large agro-forestry projects covering large areas. Tree crops are less energy-intensive than grain crops, require less water, that is, they are more drought-resistant, and what's most important, they can be grown on steep or rock marginal lands where cultivation is impractical or impossible.

—James Aronson
Journal of Commerce

The United States is now playing hardball on export credits.

The Rupert Murdoch controversy deflected attention from a policy issue that both Congress and the Carter Administration are now focusing on in a new push for an international agreement to ban Government export credit subsidies, the below-market credit terms offered by industrialized countries as a means of winning orders for their companies.

The new developments underscore a much stronger United States position in the protracted negotiations.

—New York Times

Zaire is taking some steps to put right a debt-ridden, corruption-infested economy plagued in recent years by drought, rebellion, nationalization of business and a slump in copper prices.

Western diplomats in this central African capital on the south bank of the Congo River were reluctant to predict an imminent economic turnabout. But they expressed cautious optimism that Zaire, as one put it, "could come out of the woods," in about three years.

The envoys pointed to a cabinet shuffle Jan. 18 that purged 13 ministers accused of corruption, a 30% devaluation of the Zairean currency at the end of February and the installation under contract of a Belgian Customs team to curb rampant smuggling of gold, diamonds and coffee that robs the country of foreign-exchange earnings.

—The Wall Street Journal

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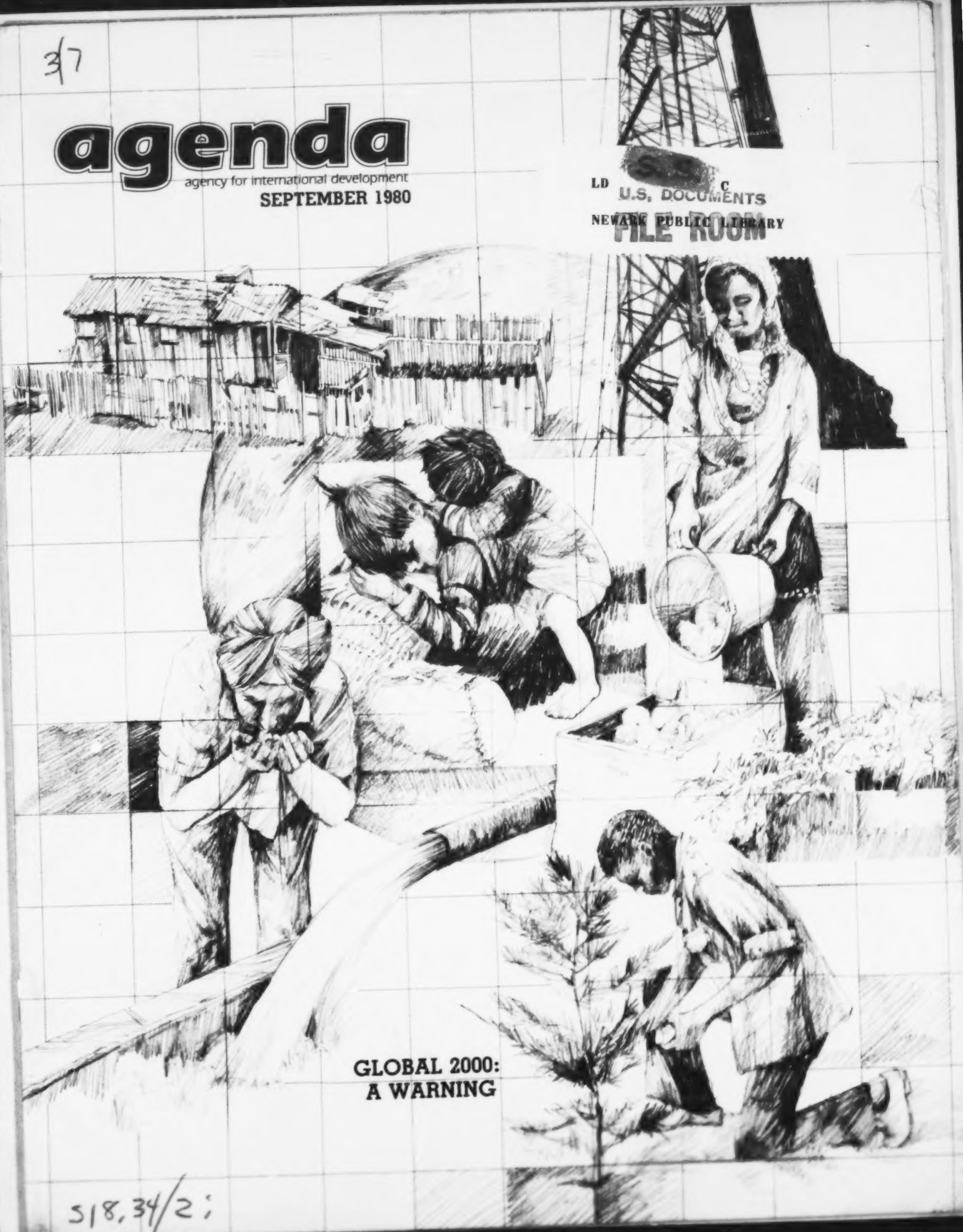

GLOBAL 2000:
A WARNING

S18.34/2:

DEVELOPMENT UPDATE

Brazil's goal of automotive fuel self-sufficiency will require the planting of more sugarcane than is planted in the 65 other countries that grow the crop.

The line dividing priority domestic issues from those of the world's agenda becomes increasingly blurred. Our own country's list of priorities is now almost identical with those of other nations—energy, food, natural resources, population, strategic and monetary concerns. For the majority of our citizens these are bread and butter issues. They affect our lives and our livelihoods. A decision made in Riyadh raises the cost of a gallon of gas in Dubuque. A bad harvest in Brazil pushes up the price of a cup of coffee in Times Square. . . . The growing interdependence of the world community means that foreign policy has rapidly become everybody's business." From a statement by John E. Reinhardt, director of the International Communications Agency, before a House Subcommittee.

Oil and the Third World: "In the low-income Third World countries dependent on imported oil, the 1979 oil price rises are slowing the movement toward auto-centered transport systems. Higher oil prices are reducing the amount of oil that can be imported to run automobiles as well as the foreign exchange available to import cars. And for consumers, they are translating into higher gasoline prices." So says Lester Brown, head of the Worldwatch Institute, writing in "Running on Empty."

"Tasks women do are invisible and undervalued," says Gloria L. Scott of the World Bank. "If one would withdraw the work women do (in developing countries), the community would be toppled."

Why are so many people in developing countries still living in such poverty? asks Edwin M. Martin in his book "The United States and the Developing Countries." "The obstacles to progress vary from country to country," he says, but among the most critical are: "a cultural heritage not yet adapted to the needs of a modern industrial society, unfavorable climate, the competition they face with our already thriving and powerful societies, and the misleading examples our apparently successful systems often set for their societies with their quite different problems and possibilities."

The development connection: Why have more than 90,000 Cubans fled to the United States in recent weeks? Aside from political considerations, most authorities believe the exodus results from several years of deepening economic frustration. Severe problems in sugar and tobacco production—two of Cuba's two major agricultural industries—have contributed to the difficulties of providing adequate economic and educational opportunities for a young and rapidly growing labor force. The result has been a rising tide of restlessness and disaffection, particularly among those Cubans with relatives in the U.S.

Population growth and national security: "In such an environment (of excessive population growth)," Maxwell D. Taylor, former chairman of the Joint Chiefs of Staff, wrote recently, "we may expect terrorist violence and frequent armed conflicts to arise within and between nations in their struggle for the scarce necessities of life. A densely populated country is always a potential enemy to a neighbor with markedly fewer people."

Correction: In the July-August issue of *Agenda*, we stated that Indonesians earn an average of $132 a year. The correct figure is $312.

agenda
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Cover: If nations fail to act quickly, the wor
will be vastly different in the year 200
Dangerous trends are pointing the way
toward overcrowding, pollution, deforest-
tion and famine. So says *The Global 20*
Report to the President, the U.S. Government
first attempt to look at population, resourc
and environment from a world perspectiv
See article beginning on page 2.

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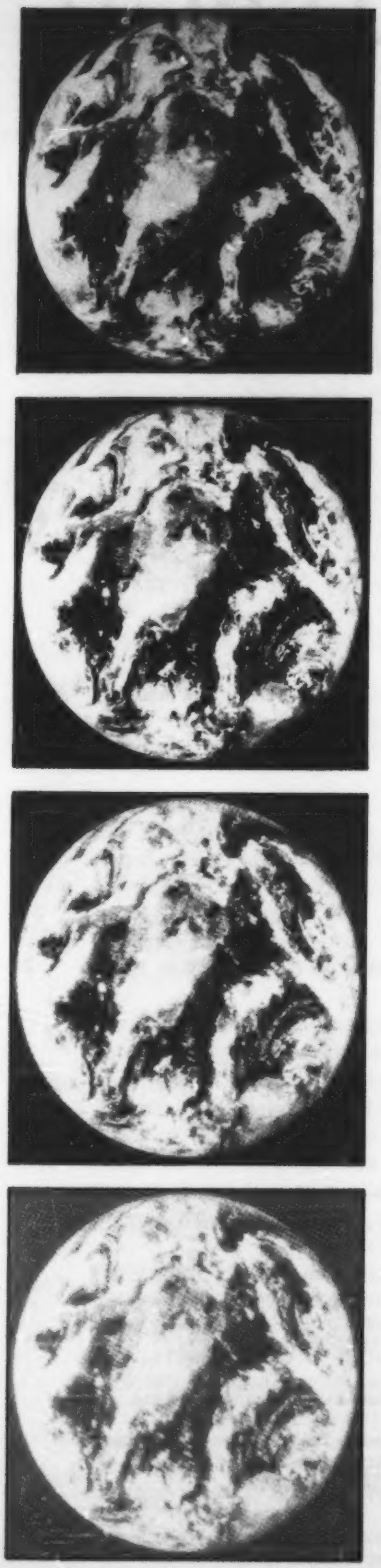
Douglas J. Bennet Jr., Administrator
James W. McCulla, Director
Office of Public Affairs

Press and Publications Division,
Office of Public Affairs
Agency for International Development
Washington, DC 20523
(202) 632-8351

Edward R. Caplan, Division Chief
Lee Mullane, Editor



GLOBAL 2000: A WARNING

Shortly after assuming office in 1977, I directed the Council on Environmental Quality, the Department of State, and other government agencies to study the profound changes that may take place in our world's population, natural resources and environment through the end of the century.

Never before had our government or any government attempted to take such a comprehensive long-range look at inter-related global issues such as world population, agriculture, water resources, forest resources, energy needs, and the overall environmental quality of the earth we live on.

The Global 2000 study is now completed. Its report projects global conditions which could develop by the end of this century, assuming that present trends and patterns around the world continue. Many of the report's findings must be of great concern to all of us. These findings point to developments related to the world's peoples and resources that our prompt attention can begin to alleviate. We will make use of the information from the Global 2000 Report in carrying out public policy wherever possible. In addition, we must continue to analyze the serious issues it raises.

It is important to understand that the conditions the report projects are by no means inevitable. In fact, its projections can and should be timely warnings which will alert the nations of the world to the need for vigorous, determined action, at both the national and international levels.

The United States is not alone in responding to global popu-

The earth may no longer be able to support life as we know it, unless nations act now.

lation, natural resource and environmental issues. The recent Venice Summit declaration committed the Western industrial nations to cooperate with developing countries in addressing global food, energy and population problems. The summit nations agreed on the need for a better understanding of the implications of resource availability and population growth for economic development. In the United Nations many of the key issues raised in the Global 2000 Report are being included in the formulation of a new international development strategy.

A number of U.S. and international responses to critical global issues are already under way. For example, since the United Nations Conference on the Human Environment in 1972, our government has contributed actively to a series of world conferences on these issues, and to follow-up actions.

There are less than 20 years left in our 20th century. The time to look forward to the world we want to have in the year 2000 and leave to succeeding generations is now. It is my firm belief that we can build a future in which all people lead full, decent lives in harmony with a healthy and habitable planet. And I believe that the skills, experience, vision and courage of the American people today make the United States a natural leader in charting and guiding humanity's course towards a better world tomorrow.

Jimmy Carter

The world in the year 2000—more crowded, more polluted, and even less stable ecologically, and more vulnerable to disruption than the world we live in now, unless the nations of the world act quickly and decisively to change current policies. Serious stresses involving population, resources, and environment are clearly visible ahead. Despite greater material output, the world's people will be poorer in many ways than they are today.

Projections of global population, natural resources and environmental trends are reported and analyzed in *The Global 2000 Report to the President: Entering the Twenty-First Century*. The report was prepared by the President's Council on Environmental Quality (CEQ) and the U.S. Department of State.

For hundreds of millions of the desperately poor, the outlook for food and other necessities of life will be no better; for many it will be worse. This, in essence, is the picture emerging from the projections of probable changes in world population, resources, and environment by the end of the century, as presented in the Global 2000 study. The projections do not predict what will occur. Rather, they depict conditions that are likely to develop if there are no changes in public policies, institutions, or rates of technological advance, and if there are no wars or other major disruptions. A keener awareness of current trends, however, may induce changes that will alter these trends and the projected outcome. The report presented these principal findings:

POPULATION

World population will not slow down very much in the next 20 years. The number of people on the globe will grow from 4 billion (in 1975) to 6.35 billion in 2000—more than 50%. The rate of growth will slow only marginally, from 1.8% a year to 1.7%. In terms of sheer numbers, population will be growing faster in 2000 than it is today, with 100 million people added each year, compared with 75 million in 1975. Ninety percent of this growth will occur in the poorest countries.

INCOME

While the economies of the less developed countries (LDCs) are expected to grow at faster rates than those of the industrialized nations, the gross national product per capita in most LDCs will remain low. The average gross national product per capita is expected to rise substantially in LDCs, especially in Latin America, but in the great populous nations of South Asia it will remain below $200 a year (in 1975 dollars). The large existing gap between the rich and poor nations will widen.

FOOD

World food production is expected to rise 90%. This translates into a global per capita increase of less than 15% over the same period. The bulk of that increase goes to countries that already have relatively high per capita food consumption. Meanwhile per capita consumption in South Asia, the Middle East, and Africa will scarcely improve—or will actually decline below present inadequate levels. At the same time, real prices for food are expected to double.

World Food production is expected to rise 90% over the 30 years from 1970 to 2000.

There will be only 4% more arable land available by 2000, so that most of the increased output of food will have to come from higher yields. Most of the elements that now contribute to higher yields—fertilizer, pesticides, power for irrigation, and fuel for machinery—depend heavily on oil and gas.

ENERGY

During the 1990s, world oil production will approach geological estimates of maximum production capacity, even with rapidly increasing petroleum prices. The study projects that the richer industrialized nations will be able to command enough oil and other commercial energy supplies to meet rising demands through 1990. But with the expected price increases, many less developed countries will have increasing difficulties meeting energy needs. For the one-quarter of humankind that depends on fuelwood, the outlook is bleak. The need for fuelwood will exceed available supplies by about 25% before the turn of the century.

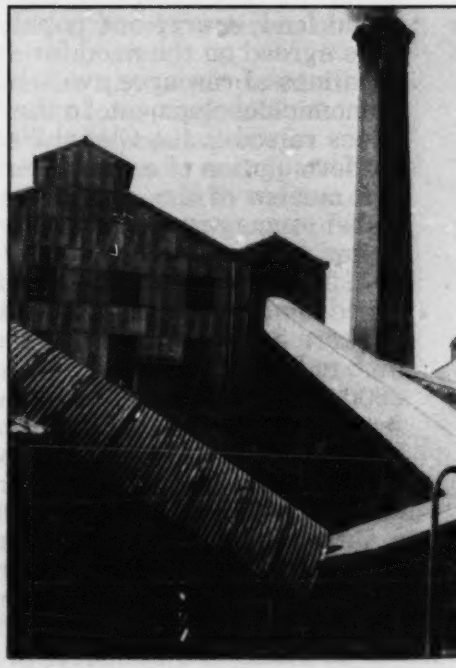
While the world's finite fuel resources—coal, oil, gas, oil shale, tar sands, and uranium—are theoretically sufficient for centuries, they are unevenly distributed; they pose difficult economic and environmental problems; and they vary greatly in their amenability to exploitation and use.

NONFUEL MINERALS

Nonfuel mineral resources generally appear sufficient to meet projected demands through 2000, but further discoveries and investments will be needed to maintain reserves. In addition, production costs will increase with energy prices and may make some nonfuel mineral resources uneconomical. The quarter of the world's population that inhabits industrial countries will continue to absorb three-fourths of the world's mineral production.

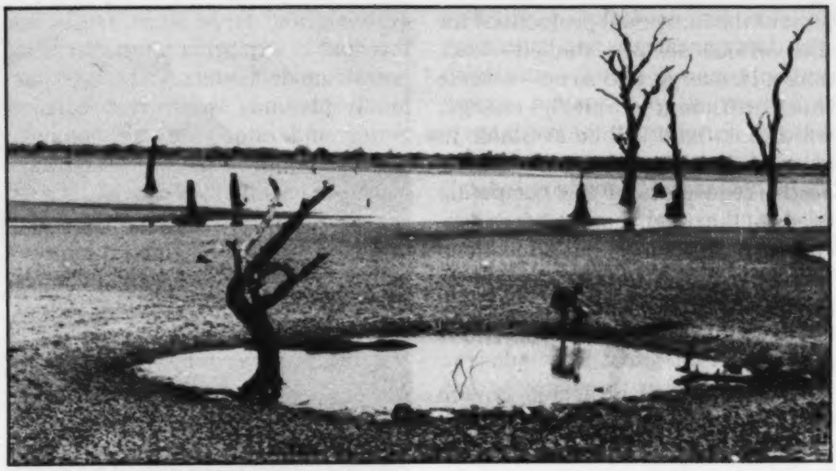
There will be nearly 100 million more people each year and most will go hungry.

While coal and other finite fuel resources are theoretically sufficient for centuries, they are unevenly distributed.



WATER

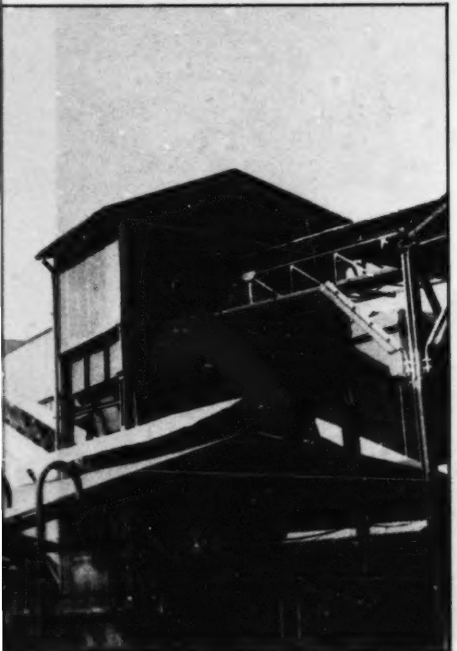
Regional water shortages will become more severe. In the 1970-2000 period population growth alone will double the need for water in nearly half the world. Still greater increases would be needed to improve standards of living. In many LDCs, water supplies will become increasingly erratic by 2000 as a result of extensive deforestation. Development of new water supplies will become more costly virtually everywhere.



By 2000, some 40% of all the forests left in developing countries will be gone.

FORESTS

Significant losses of world forests will continue over the next 20 years as the demand for forest products and fuelwood increases. Growing stocks of commercial-size timber are projected to decline 50% per capita. The world's forests are now disappearing at the rate of 18-20 million hectares a year (an area half the size of California), with most of the loss occurring in the humid tropical forests of Africa, Asia, and South America. By 2000 some 40% of the remaining forest covering LDCs will be gone, according to the projections.



CROPLANDS

Worldwide, farmland will deteriorate, due to erosion, loss of organic matter, desertification, salinization, alkalinization, and waterlogging. Already, an area of cropland and grassland approximately the size of Maine turns to barren wasteland each year, and the spread of desert-like conditions is likely to accelerate.

ENVIRONMENT

Atmospheric concentrations of carbon dioxide and ozone-depleting chemicals are expected to increase at rates that could alter the world's climate and upper atmosphere dangerously by 2050. Acid rain from increased combustion of fossil fuels (especially coal) threatens damage to lakes, soils, and crops. Radioactive and other hazardous materials present health and safety problems in increasing numbers of countries.

Plant and animal species will become extinct with growing frequency. Hundreds of thousands of species—perhaps as many as 20% of all species on earth—will be irretrievably lost as their habitats vanish, especially in tropical forests.

CONCLUSIONS

The Global 2000 projections, may actually understate the impending problems. The methods used to carry out the study led to certain gaps and inconsistencies that tend to impart an optimistic bias. For example,

Already an area of land about the size of Maine turns to barren wasteland each year.

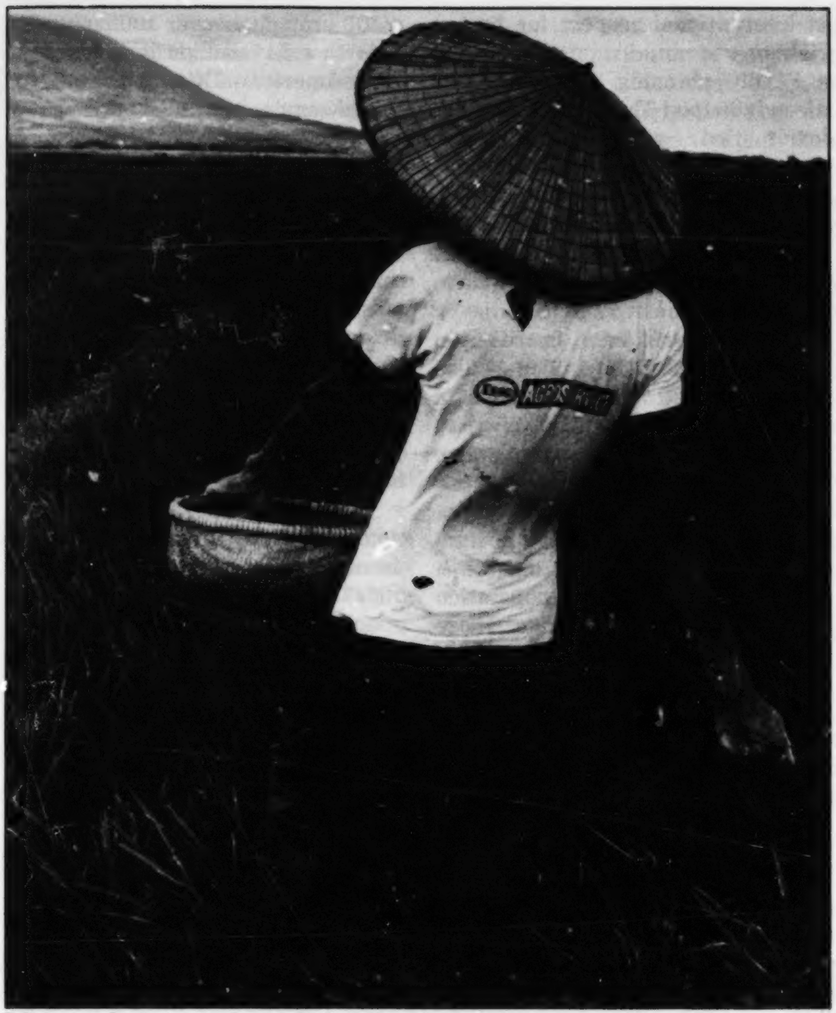
most of the individual projections for the various sectors studied--food, minerals, energy, and so on—assume that sufficient capital, energy, water, and land will be available in each of these sectors to meet their needs, regardless of the competing needs of the other sectors. More consistent, better-integrated projections would produce a still more emphatic picture of intensifying stresses, as the world enters the twenty-first century.

At current and projected growth rates, the world's population would reach 10 billion by 2030, and would approach 30 billion by the end of the 21st century. These levels closely correspond to what the U.S. National Academy of Sciences estimates as the maximum carrying capacity of the entire earth. Already the populations in sub-Saharan Africa and in the Himalayan hills of Asia have exceeded the carrying capacity of the immediate area, triggering an erosion of the land's capacity to support life. The resulting poverty and ill health have further complicated efforts to slow birth rates. Unless this circle of interlinked problems is broken soon, hunger and disease will claim more babies and young children, and more of those surviving will be mentally and physically handicapped by malnutrition.

Indeed, the problems of preserving the carrying capacity of the earth and sustaining the possibility of a decent life for the human beings that inhabit it are enormous and close upon us. Yet there is reason for hope. It must be emphasized that the Global 2000 study's projections are based on the assumption that national policies regarding population stabilization, resource conservation, and environmental protection will remain essentially unchanged through the end of the century. But in fact, policies are beginning to change. In some areas, forests are being replanted after cutting. Some nations are taking steps to reduce soil losses and desertification. Interest in energy conservation is growing, and large sums are being invested in exploring alternatives to petroleum dependence. The need for family planning is slowly becoming better understood. Water supplies are being improved and waste treatment systems built. High-yield seeds are widely available and seed banks are being expanded. Some wildlands with their genetic resources are being protected. Natural predators and selective pesticides are being substituted for persistent and destructive pesticides.

Encouraging as these developments are, they are far from adequate to meet the global challenges projected in this study. Vigorous, determined, new initiatives are needed if worsening poverty and human suffering, environmental degradation, and international ten-

Industrial development will help lift nations out of poverty to which other problems are linked.



Policies are beginning to change. High yield seeds, for example, are widely available.

sion and conflicts are to be prevented. The only solutions to the problems of population, resources, and environment are complex and long-term. These problems are inextricably linked to some of the most perplexing and persistent problems in the world—poverty, injustice, and social conflict. New and imaginative ideas—and a willingness to act on them—are essential.

The needed changes go far beyond the capability and responsibility of the United States or any other single nation. An era of unprecedented cooperation and commitment is essential. Yet there are opportunities—and a strong rationale—for the United States to provide leadership among nations. A thorough assessment of U.S. foreign and domestic policies relating to population, resources, and environment must be a high priority. The United States, possessing the world's largest economy, can expect its policies to have a significant influence on global trends. An equally important priority for the United States is to cooperate generously and justly with other nations—particularly in the areas of trade, investment, and assistance—in seeking solutions to the many problems that extend beyond our national boundaries. There are many opportunities to cooperate with other nations in efforts to relieve poverty and hunger, stabilize population, and enhance economic and environmental productivity. Further cooperation among nations also is needed to strengthen international mechanisms for protecting and utilizing the "global commons"—the oceans and atmosphere.

To meet the challenges described in this study, the United States must improve its ability to identify emerging problems and assess alternative responses. In using and evaluating the government's present capability for long-term global analysis, the study found serious inconsistencies in the methods and assumptions employed by the various agencies in making their projections. The study itself made a start toward resolving these inadequacies. It represents the government's first attempt to produce an interrelated set of population, resource, and environmental projections, and it has brought forth the most consistent set of global projections yet achieved by U.S. agencies. Nevertheless, the projections still contain serious gaps and contradictions that must be corrected if the Government's analytic capability is to be improved. It must be acknowledged that at present the federal agencies are not always capable of providing projections of the quality needed for long-term policy decisions.

With its limitations and rough approximations, the Global 2000 study may be seen as no more than a reconnaissance of the future; nonetheless its conclusions are reinforced by similar findings of other recent global studies. All these studies are in general agreement on the nature of the problems and on the threats they pose to the future welfare of humankind. The evidence leaves no doubt that the world—including the United States—faces enormous, urgent, and complex problems in the decades ahead. Prompt and vigorous changes in public policy around the world are needed to avoid or minimize these problems before they become unmanageable.

CHANGING THE COURSE:

U.S. efforts can affect the course of events in the areas of concern identified by the Global 2000 study by continuing efforts in population and health—to slow the rate of unchecked population growth; agriculture—to combat world hunger; energy—to increase energy production and conservation in developing nations. These priorities for foreign assistance are reflected by:

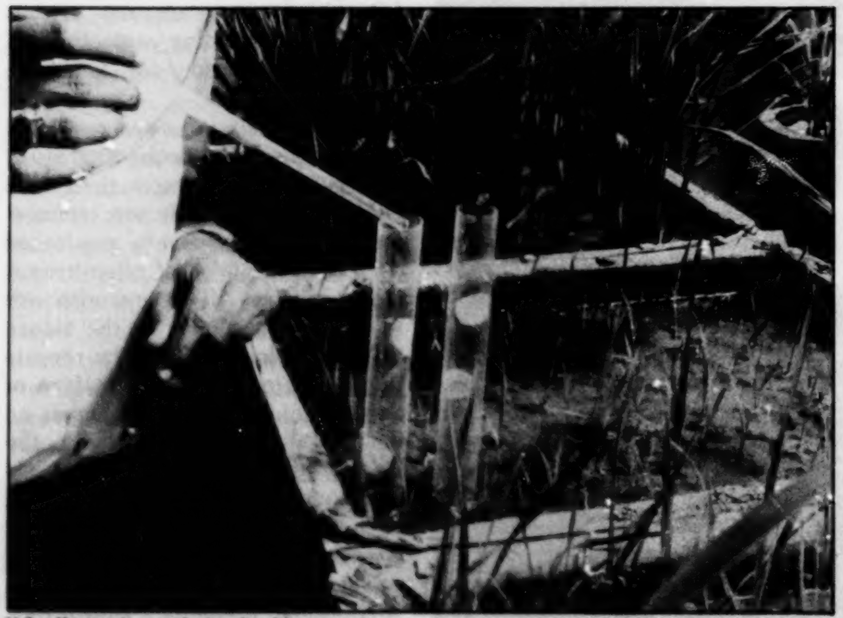
- U.S. bilateral programs administered by the Agency for International Development (AID) for agriculture and nutrition have increased from $474 million in 1977 to $758 million planned for 1981.
- World Bank lending for agriculture and rural development during the 1977-79 period exceeded $8 billion.
- U.S. bilateral assistance to increase energy production in developing nations has doubled in the past two years.
- World Bank lending for fossil fuel development in poor countries is projected to reach $5.6 billion over the next five years.
- Our commitment to the promotion of international respect for human rights.
- Family planning assistance has already helped Third World nations lower their rate of population growth. With U.S. resources and more efforts by other donor countries and developing nations, we can bring the rate down further.

Since 1965, donor nations have provided about $2.5 billion in population assistance, more than half of that—$1.4 billion—came from the United States. Largely as a result of these efforts, more than 25% of the couples of reproductive age in developing countries now practice some form of contraception. Birth rates have declined substantially—so much so that despite a decline in death rates, population growth rates have fallen too. These birth rate declines can accelerate if we expand family planning service, support research and foster the economic development that makes smaller families more attractive to parents.

- With U.S. support, the United Nations Fund for Population Activities has conducted censuses in 28 African countries, and supported some 1,300 projects in over 100 countries.
- With a $17 million loan from the Inter-American Development Bank, the swampy slums of Guayaquil, Ecuador, were drained and sewage and storm drainage facilities were built for 250,000 inhabitants.
- The commitment of the Indonesian government and AID resources (funds, people, supplies) are the two major factors in Indonesia's dramatic decline in population growth from 2.4% five years ago to 1.9% today. Over 5.5 million Indonesian women—30% of the married women of reproductive age—are using contraceptives.
- The population of low income settlements surrounding Jakarta, Indonesia, has grown from about 500,000 in 1945, to almost 5 million people today, 90% of whom lived without sanitary water or waste systems, until a 1974 World Bank project. With U.S. support, the World Bank provided loans to construct over 20,000 communal toilets and to provide safe drinking water.
- The World Health Assembly has formally celebrated the eradication of smallpox. Over a 13-year period—through AID and the U.S. Public Health Service—the U.S. contributed $27 million to smallpox eradication. We save the amount every three months by not having to inoculate against smallpox.
- World food production can be dramatically increased: by the mid-80s we could help Thailand export an additional 5 million tons of grain, bring 4 million acres under irrigation in Bangladesh, double cereal production in Peru, and bring a number of African countries to food self-sufficiency. By 2000, we reverse deforestation trends. Development of new and renewable energy sources can cut back the use of wood for fuel and aid conservation efforts in many countries to bring more land into agricultural production.

Progress to Date:

- India, through the "green revolution" and the work of the Interna-



U.S. efforts—in population, health, agriculture and energy conservation and production—can affect the course of events.

tional Rice Research Institute—funded partly by the United States—has built up its agriculture so that the country can now feed its huge population. In fact, India's food production and reserves saw the country through a severe drought last year.

- More than 14,000 kilometers (8,680 miles) of all-weather rural roads will connect farmers in 23 areas in Kenya to potential markets as a result of a U.N. Development Program project. It also will generate 90,000 person-years of employment, since nearly all of the equipment being used is locally-produced and labor-intensive.
- Over the last 30 years, AID has helped Bolivia create a farm credit system. One $9.2 million loan to provide credit to 200,000 small farmers showed a 40% increase of land planted by participating farmers. Yields of corn, wheat and barley have increased by 30%, 87% and 179%, respectively.
- After Jordan's civil war in the early 1970s, the Jordan valley was desolate. Today 85,000 people live there and with 10% of the country's agricultural land, they produce 65% of its agricultural output. AID was the major contributor to constructing the main canal that irrigates 85% of Jordan's irrigated land. AID also trained farmers, helped them develop modern credit and marketing systems; helped expand marketing roads and public utilities; and helped build schools.
- Through a 1974 loan provided by the International Development Association, 4,800 dairy cooperatives are being assisted, organized and supported in three states in India. The project, which provides cross-breeding, extension programs, and cooperative dairy plants, will result in an increase of 1.7 million tons of milk, employ some 16,000 farmers, and benefit milk consumers—mostly children—in India.
- Exploration for oil in developing countries could yield 25-75 billion barrels found over the next 10 years, about 4-12% of world proven reserves. Further development of hydroelectric power, coal and renewable sources of energy will also help meet developing countries' needs.
- Like most other developing nations, Nicaragua has suffered from the worldwide increase in the cost of energy. A United Nations Development Program study in Nicaragua's Monotombo fields is leading to the construction of two geothermal energy plants, which together will produce enough electricity to meet almost 20% of Nicaragua's electrical needs, thereby reducing anticipated oil consumption by one million barrels per year.
- Under the Landsat program, AID helps developing countries to procure satellite pictures for national planning of economic development programs, to monitor deforestation, and to locate natural resources.
- Costa Rica's anticipated oil imports will be reduced by an Inter-American Development Bank financed hydroelectric plant on the Lake Arenal watershed. The plant will increase Costa Rica's electricity to thousands of Costa Ricans without an increase in petroleum imports.
- The U.N. Development Program helped drought-prone Mali find drinkable groundwater for 4.5 million villagers. The project provided drilling rigs, trained people, identified water points and sank 2,000 boreholes, equipping them with pumps, some of them solar-powered.
- AID funded an environmental assessment that resulted in secondary wastewater treatment for the Aqaba sewerage program in Jordan, thus protecting tourist beaches and fragile coral reefs in the Gulf of Aqaba. □

Medical staff trained through programs the United States has helped support are now saving lives in developing countries.

Copies of the Global 2000 report are available from the U.S. Government Printing Office, Washington, DC 20402. Stock numbers and prices are:

Vol. 1, The Summary Report (S/N 041-011-00037-8), $3.50

Vol. 2, The Technical Report (S/N 041-011-00038-6), $13.

Vol. 3, The Government's Global Model (S/N 041-011-00051-3), $8.

The report is also available from Pergamon Press, Maxwell House, Fairview Park, Elmsford, NY 10523.

Fading Forests Threaten Life

Tropical forests—42% or 1.9 billion hectares of all tropical lands—make up the world's richest ecosystem and are the source of sustenance for millions of people.

Every year, as much as 20 million hectares of this life-supporting system "disappears."

The statistics and their implications for humankind led President Carter two years ago to establish a U.S. Interagency Task Force on Tropical Forests. The result is a 53-page comprehensive report that recommends a U.S. policy, strategy and program. The task force, which included AID members, maintains that U.S. efforts, coordinated with those made by other countries as well as international organizations, could make a difference in what the Earth's surface looks like in 20 years.

The subject of the report on "The World's Tropical Forests" was singled out of the "Global 2000" study as a matter requiring immediate attention. The President has asked federal agencies to detail, by the end of September, their plans to carry out recommendations made by the tropical forests task force.

The urgency surrounding tropical forests is not new to AID. The Agency has long been concerned with forestry management, having incorporated it into such activities as agriculture and watershed projects. As of fiscal 1980, AID has $17 million worth of forestry and related projects in the works with budget requests from the field reflecting increasing interest. A discussion paper on the subject is ready for distribution to the missions. AID headquarters will consider responses before issuing a formal policy statement, which is expected to form part of the Agency's response to the White House.

In the meantime, to underscore the importance AID attaches to the issue, an Office for Environment and Natural Resources under the Development Support Bureau has been established.

The direct causes of tropical forest losses are their conversion and use for agriculture, fuelwood gathering and poorly managed commercial logging. Behind these pressures, however, are fundamental problems of increasing population, inequalities in land tenure, lack of advancement in agricultural technology and lack of employment opportunities.

The consequences of uncontrolled tropical forest losses include rising prices and wood shortages in tropical countries and a variety of ecological problems. Floods of unprecedented severity, with large life and property losses, are being attributed to the loss of vegetation on upland watersheds. Lakes, reservoirs and irrigation systems are adversely affected by siltation. In the semiarid regions of Africa and Asia, where up to 90% of the population depends on woody vegetation for fuel, fuelwood supplies are receding far from human settlements. Fuelwood prices, time spent collecting wood and the suffering from doing with less are on the rise. With no other substitutes, people are burning dung and crop residues which previously were used to maintain soil fertility. "Desertification," triggered by vegetative cover removal and overgrazing in semiarid regions, now threatens the productive capacity of the resource base over large areas of the tropics.

Finally, extinction of indigenous plant and animal species is occurring at a rate never before experienced. According to the National Academy of Sciences, one-third of all tropical organisms—nearly a million species—may become extinct by the end of the century as a result of deforestation. A potential problem is climate. If tropical forest losses continue at the current rate, the carbon cycle will be affected in such a way that the Earth's climate may experience extreme changes in the 21st century.

The future of the world's tropical forests will be determined largely by decisions outside the scope of forestry per se, says the task force report. The decisions concern population growth and migration, rural development, food production and national land-use policy. They will need to be made by all nations—developed and developing.

The United States, with less than 1% of the world's total forestry resource, recognizes the role it must play to protect its various interests—humanitarian, political, developmental, environmental, educational, scientific and above all, economic. U.S. economic interests are related to the exports of U.S. products and investments abroad and to the import of tropical wood, food, medicinal plants and related products. The developing countries represent the fastest growing export market for the United States. U.S. earnings from direct investment in the third world in 1978, for example, totaled more than $16 billion. While the U.S. share of the world's tropical forests is small, the overall U.S. stake in their sustained production is high.

Pages Missing

TDP's cost-benefit ratio is "of special significance in light of the trade deficit and declining employment. . . ."

—Hilton Davis
U.S. Chamber of Commerce

With projects in such areas as housing comes the need to buy imported materials from the United States, among others.

This is borne out by numerous examples. In one instance a few years ago, an American contractor carried out a $2 million feasibility study (not under TDP) on hydrocarbon gas and liquid recovery in North Africa. The result was a substantial amount of business for U.S. engineers and suppliers. Not only were two pipeline systems valued at $75 million and $300 million financed by the U.S. Export-Import Bank, but a $900 million contract for a gas-gathering system was awarded to another American contractor.

Though the "seed money" provided by TDP is on a far more modest scale—most grants have been in the tens of thousands, not millions—the principle is the same and the results equally promising. In Thailand, for example, TDP provided $225,000 for initial studies on a proposed natural gas pipeline system. As a result, $20 million in contracts for design and construction supervision were awarded to one U.S. firm. In addition, another U.S. firm recently won a $77 million contract for laying the pipeline.

TDP's budget is small in comparison with that of Japan, Germany, France and others to promote exports in the development area. Experts estimate, for example, that in 1979 alone, Japan provided at least $56 million in grants for development-related feasibility studies leading to Japanese export opportunities. TDP, from 1975 through 1979, has spent only $5.8 million, including its operating expenses.

Not surprisingly, this is a point that disturbs many American business people, who contend that U.S. firms are at a considerable disadvantage against major foreign competitors who are subsidized and otherwise helped.

"In competition for major construction projects, a contractor's relative ability to perform the work is no longer the determining factor in his overall chances of success," Godley told a congressional committee earlier this year. "There is evidence that the competition for major projects overseas is now being carried out between governments (of industrialized countries) and the contractor as part of a government-backed package that includes project finance, political risk insurance, grant funding for feasibility studies and more."

Whatever the cause, statistics on declining U.S. exports and a persistent trade deficit tend to bear him out. In the Middle East, for example, U.S. contractors won only 1.6% of $21.8 billion worth of contracts let during the 13 months ending in June 1979. According to many economists and business analysts, this is not an isolated trend. Many see the need for more incentives on the export front. TDP could point the way for the '80s. ☐

Kay Chernush is a freelance photographer-writer in the Washington, DC area. She formerly was on the staff of AID's Office of Public Affairs.

The foreign assistance program can help Americans off-the-job because of foreign imports.

Unemployment and inflation in the United States continue to rise. So does anxiety among U.S. workers and businesses. More and more companies show signs of crumbling, often because they can no longer compete in the world market. The textile, tire and auto industries cut back production or close down entire factories largely because their customers appear to prefer imports. Consequently, workers and industries apply pressure for tougher tariffs and trade quotas.

But what business and union leaders are only beginning to recognize is that they may have more to lose in the long run if U.S. trade barriers are strengthened. Many international economic experts believe that an open trade policy with a comprehensive trade adjustment assistance program may be the most beneficial course—for U.S. workers and businesses and for Third World economies.

In the past 10 years, Third World nations have dramatically increased their exports of manufactured goods—and the income from those exports has helped to pay for imports they need. From 1970 to 1978, goods produced in developing countries and shipped to industrialized nations, including the United States, grew from $6.5 billion to $239 billion. Exports account for nearly 80% of the total foreign exchange earnings in developing countries and for about 3% of all manufactured goods actually bought by American consumers.

As developing countries' per capita income increases, their demand for manufactured imports also increases. Countries that have become "middle income," such as Taiwan, South Korea and Mexico, also have become important trade partners with the United States. In 1979, the United States exported $63 billion worth of goods to the developing nations—35% of all U.S. exports. This exceeds exports to Europe, Japan and the Soviet Union combined.

International trade not only allows countries to acquire material they need, but also encourages

greater efficiency by competition, specialization, and the economies of scale (the greater the production, the lower the unit cost).

Manufactured imports do present a threat to domestic U.S. industries. If imports greatly undersell domestic products, domestic industries may fail and jobs end. Endangered industries and workers then can only encourage the government to (1) increase tariff and trade barriers, thereby preserving the status quo by making the domestic products competitive with the imports, or (2) pursue a comprehensive trade and adjustment policy that promises balanced growth of the national and world economy.

Increased protection presents the more politically expedient course, but not necessarily the wisest. If we raise tariffs and establish import quotas, one unhappy result might be retaliation by other countries in the form of similar trade restrictions, thus shrinking U.S. export markets. Currently the sale of U.S. goods and services abroad accounts for 10% of the U.S. gross national product. The loss of those markets undoubtedly would force domestic production levels down, creating more job losses. One out of eight manufacturing jobs depends on exports.

Moreover, the U.S. consumer, especially in the low- to middle-income brackets, benefits from imports from developing countries. According to a recent Overseas Development Council (ODC) report, imports from the Third World consist mainly of consumer goods in the lower price ranges—shoes, clothing, and small appliances. These products, generally purchased by lower income families, help lessen the impact of inflation. The ODC report cites a survey of actual U.S. retail sales showing that imports from developing countries cost 16% less than U.S. products of the same quality. How much more do U.S. goods cost? Sugar $660 million more than for imported, television sets $55 million more, footwear $1,200 million more, according to the ODC.

Lower prices, greater markets, and wider job opportunities all make an open trade policy attractive. But there is inevitable damage to the electronic, textile and leather industries, among others, and, according to the ODC reports, workers hurt by foreign imports generally are poorer, less educated, less skilled and older. Taking the adverse effects into account, the U.S. open trade policy incorporates benefits for people and businesses adversely affected by imports. Workers are provided other jobs, basic education, job training, and income maintenance during the transition period, all through the government-funded Trade Adjustment Assistance (TAA) program.

The first such program, established by the Trade Expansion Act of 1962, tried to win labor's support for the Kennedy Round of trade cuts. But strict eligibility standards and procedures limited that program's success. In fact, no benefits were awarded until 1967, when the standards were relaxed to include more industries. Further expansion took place under the Trade Act of 1974, the current authorizing legislation. Under the original program, recip-

TRADE ADJUSTMENT:

Aid to U.S. Workers

by James Bednar

ients were workers who had "prematurely" lost their jobs. In 1974, reforms were made to allow the program to help workers on short-term layoffs.

The benefits include 70% of a worker's previous gross weekly wage up to the national average weekly wage in manufacturing (currently $269 a week), training and relocating funds. Benefits can be collected for up to 18 months, depending on the recipient's age and whether or not he or she needs retraining.

The program can work. In September 1977, the Zenith Radio Corp. moved much of its production overseas, laying off 5,600 workers across the United States. *Forbes* magazine recently surveyed some of the former Zenith workers in the Chicago area: Of the workers contacted 70% are working again, nearly twice as many in service industries as in manufacturing. *Forbes* found a significant number of cases in which TAA retraining improved lives. One Zenith tester, for example, who had earned $5.50 an hour in 1977, has become a Chicago bus driver earning $11 an hour.

In the first full year of the TAA program, almost 47,000 workers—in such industries as electronics, textiles and shoemaking—received benefits totaling $69.9 million. By fiscal year 1979 as TAA became better known and imports increased, 150,000 workers received TAA support amounting to $265 million. With the decline in U.S. economic growth, nearly 600,000 American workers are now eligible for TAA, according to the U.S. Labor Department. Congress recently appropriated an additional $1.1 billion for this year and $400 million to be added to fiscal 1981's TAA benefits.

But the program is not without problems. TAA benefits were designed to help workers adjust to foreign competition by retraining or relocating them. However, a General Accounting Office (GAO) study of the overall TAA program found that few workers receiving the monetary benefits take advantage of the government-funded training or relocating—less than 4% and 1% respectively. The *Forbes* survey at Zenith found that none of the Zenith workers thought about leaving Chicago for jobs elsewhere. According to the *Washington Post*, of the 40,000 Chrysler workers recently laid off in Michigan, Missouri and Ohio, only 960 applied for 700 positions open in Chrysler's Delaware plant, though Chrysler agreed to pay moving ex-

The Philippines imports American-made mining equipment.

Chilean factories produce about 650,000 pounds of fish meal monthly, primarily for export.

With low labor costs Third World nations can excel in such areas as textile manufacturing.

penses. The main reason seems to be that the workers hope to return to their original jobs. And at least for the present, they often can. In interviewing some who had received TAA benefits for a year, GAO found 6% retired, 18% working in new jobs, 67% back at their old jobs, 4% waiting to be called back to their old jobs, and 5% unemployed without hope of returning to their old jobs.

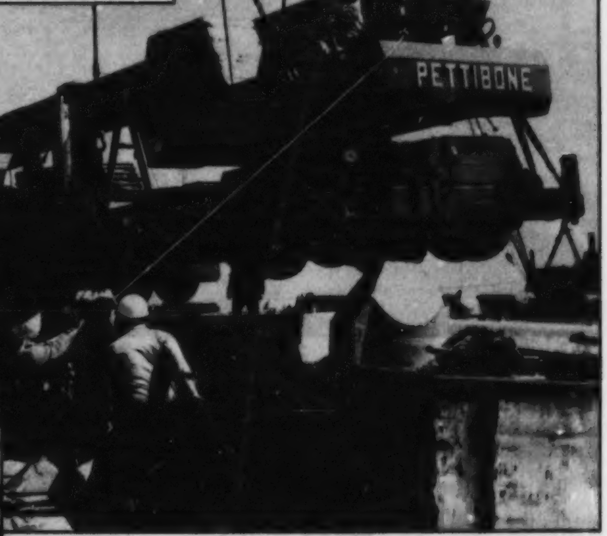
GAO suggests that the generous unemployment benefits make workers more interested in waiting for their old jobs than in finding new ones. TAA benefits, added to regular unemployment insurance, are generally tax-free. When supplemental unemployment benefits under union contracts are added, the total jobless pay rises to as much as 150% better than wages. However as competition increases, the same companies now re-hiring their laid-off workers may find it much more difficult to do so in the future.

Nevertheless, despite some difficulties in application, the TAA idea is catching on. In fact, some industries have started their own adjustment programs. The tire industry, for example, has recently found it financially beneficial to give job assistance. Goodyear Tire and Rubber Co. has started a $300,000 pilot program. Of the 2,000 workers Goodyear laid off in February, about 35% now have new jobs. The savings Goodyear realized by not having to pay unemployment benefits (employees are entitled to up to $290 a week for one year) have more than paid for the program.

There appears to be little doubt that the benefits represented in jobs and lower consumer prices outweigh the costs of a trade adjustment policy. Or that the benefits will increase if the developed countries move out of low-technology industries, in which they can't compete, into high-technology areas where they can excel.

With low-cost labor readily available, Third World countries, now setting up industrial sectors, will have little difficulty out-producing labor-intensive industries in the United States. Now, say many international economists, the United States must recognize not only that it has an important stake in trade with developing countries, but also that future economic growth here and abroad will depend on making positive adjustments to a changing world economy. □

James Bednar is on the staff of AID's Office of Public Affairs.



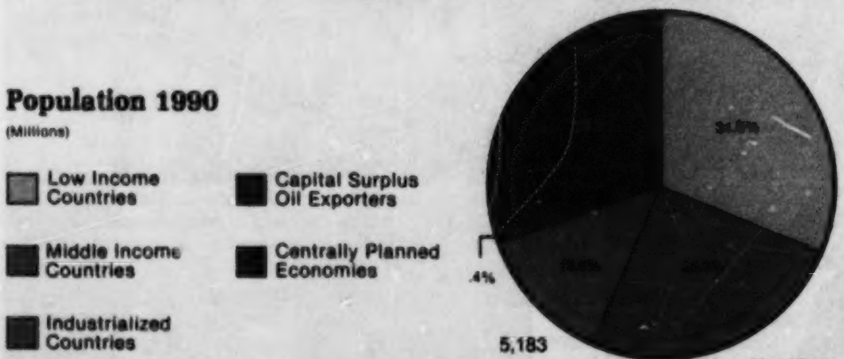
Baltimore longshoremen load part of a $2.4 million shipment of port rehabilitation equipment bound for a developing country.

Taiwan, once a U.S. aid recipient, is now a major trade partner.

Middle-Income Countries: Who Are They?

They are nations in transition, and they are important to the U.S.

by Keith E. Jay



Population 1990
(Millions)

World Bank

The so-called "middle-income countries" have generated both interest and concern in recent years—the interest because of their economic potential and political importance, the concern because of the size of their economic problems. These countries are especially important to the United States economically and politically. They are a major market for U.S. exports, importing more than $33 billion of U.S. products in 1978. They are a major supplier of U.S. imports—selling us $34 billion worth of goods in 1978. Over 70% of U.S. direct foreign investment and private bank lending in the developing countries today is in the middle-income countries.

Which countries are middle-income countries?

Surprisingly, despite extensive discussion in international forums and the press, there is no widely accepted definition. This stems in part from the recognition that many variables affect a country's development prospects; that what constitutes a middle-income country may vary with the specific issue being addressed; and that being cast into a middle income category could exclude some developing countries from potential assistance.

Nevertheless, there is a general perception of who typically would qualify as middle-income: Brazil, Chile, Colombia, Jamaica, Korea, Malaysia, Mexico, Panama and Turkey, for example. In recent years the United States has used the eligibility criterion for lending from the International Development Association (IDA), the World Bank's concessional lending affiliate, to distinguish between low-income and middle-income developing countries. The current IDA criterion is a per capita income of $680 (in 1979). This has been used in at least three pieces of U.S. legislation: (a) to differentiate between softer and harder terms for AID development loans; (b) to allocate food assistance under PL 480 Title I; and (c) to define countries where the Overseas Private Investment Corp. (OPIC) would place its emphasis.

As a general rule, the middle-income countries share a set of characteristics that separate them from the low-income developing countries. The human and physical infrastructure of middle-income countries is far more developed; this is reflected not only in their higher literacy rates and longer life expectancy but also in their much larger industrial capacity, higher energy usage and more developed transportation and communications systems. Similarly, as these countries have developed, they have become more industrial and urban than the low-income countries.

For most of the middle-income countries, international trade has become a larger component of their total economy than for the low-income countries, and it is by far the most important source of critical foreign exchange. Their exports have been expanding an average of over 6% a year in real terms during the last decade, compared with less than 3% for the low-income countries. A central element in their export expansion has been the dramatic growth in manufactured goods, which are fast approaching 40% of total merchandise exports. This growth in exports, and particularly manufactured exports, also means that the international trade policy that the developed countries follow, as well as their economic performance can have very direct and significant impact on trade and growth in developing countries.

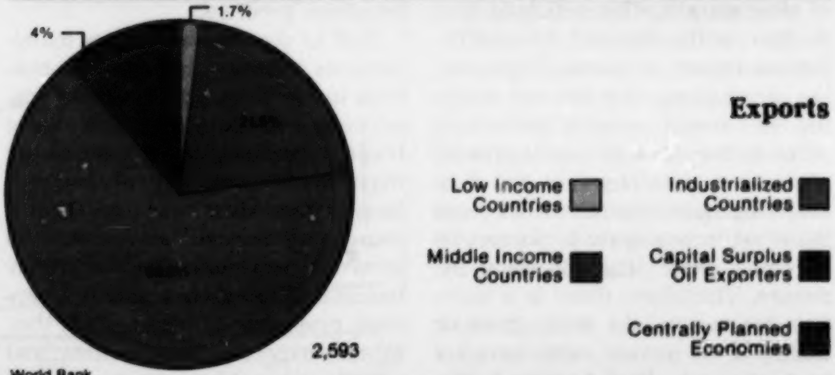
The level of both domestic savings and domestic investment within middle-income countries is significantly higher, just as overall economic growth has been over the last decade. Real per capita income in middle-income countries has grown over 3.5% a year since 1970, compared to less than 2% for the low-income countries.

Because of their more advanced economic structure and stronger economic performance, middle-income countries are better able to obtain and service non-concessional external capital flows in support of their development. Thus they are far less dependent on concessional external flows, with concessional flows representing less than 20% of their total capital inflows in recent years. This contrasts with 70% for low-income countries.

This is the major reason that most donors, including the United States, focus concessional assistance on the low-income countries, relying on non-concessional windows of the multilateral development banks, the private international capital market and the IMF to provide the bulk of the needed external financial flows to middle-income countries.

But while middle-income countries have shown strong economic performance in recent years, their increased involvement in the international economy has also created adjustment problems as the economic environment has changed. Following the 1973-74 oil price increase and the accompanying recession in the developed countries, the middle-income countries faced dramatically higher balance-of-payments deficits. Given their general capacity to service non-concessional flows, their relatively low levels of external debt, relatively low private bank exposure in the developing world and high levels of international bank liquidity, the middle-income countries were able to borrow heavily on the private international markets during 1974-76 to finance their deficits and avoid major disruption in their development. The result of this extensive borrowing was a dramatic rise in the external debt of these countries from $46 billion in 1973 to $143 billion in 1978.

In addition, the multilateral financial institutions, particularly the International Monetary Fund (IMF) and the International Bank of Reconstruction and Development (IBRD), greatly expanded the level of official capital flows available to the middle-income countries. The IMF, for ex-



World Bank

ample, established the Extended Fund Facility and liberalized the Compensatory Financing Facility while yearly IBRD lending to these countries between 1973 and 1978 increased from $1.3 billion to $3.7 billion.

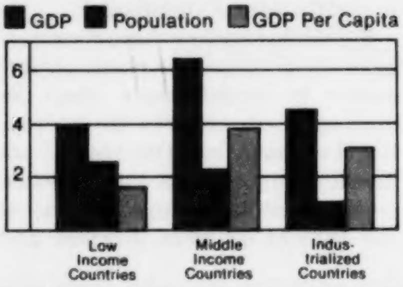
By 1978, balance of payments deficits for developing countries had declined considerably, reflecting their adjustment to new oil prices, and renewed economic growth in industrialized countries. However, the 1979-80 oil price increases again have produced a dramatic deterioration in the financial position of the middle-income countries. Current projections place the 1980 LDC balance-of-payments deficit at over $60 billion, with the middle-income countries accounting for the bulk of it.

As in the post 1973-74 period, the IMF, the IBRD and the private capital markets again will be the primary sources of external financing for the middle-income countries.

Most observers believe those sources will be sufficient to address the most pressing financing problems of the developing world in the months ahead. There is, however, growing concern that appropriate financing may not be available over the next couple of years. This concern arises partly from the fact that, unlike the post 1973-74 period, oil prices may be maintained or even increased in real terms, exerting continuing pressure on their balance-of-payments. At the same time, the industrialized countries are in a period of slow growth. This will lead to a decline in the demand for middle-income country exports. Moreover, the developing countries are entering the current round of current oil price increases with much greater absolute outstanding debt and debt servicing requirements at the same time that some private banks may be reaching their limit of debt exposure. Therefore, there is a question concerning the willingness or ability of the private capital market to continue to lend heavily to the middle-income countries beyond 1980.

Comparative Growth of Gross Domestic Product and Population 1960-76

(Average annual percentage growth rates)



World Bank

Overlaying this concern is a protectionist sentiment, growing within the developed countries in response to external competition and recession. This pressure to protect home markets centers largely on precisely the type of labor-intensive manufactures (electronics, textiles, leather) that the middle-income developing countries produce.

Half of developing country manufactures already face import controls in the industrialized countries, according to some estimates. More trade restrictions would reduce the export earning capacity of countries heavily dependent upon exports as a source of foreign exchange and growth. This would affect both their balance of payments and development prospects at a time when they already expect serious financial and adjustment problems.

To address the problems facing the middle-income countries, the international community needs to resist the current protectionist pressure and assure that middle-income countries have access to adequate levels of non-concessional resource flows to avoid major disruption in their development and to permit needed adjustment within their economies.

The international community already has taken steps to address the financing issue. For example, this year the IBRD inaugurated a structural adjustment lending program. Under this, the IBRD is making non-project loans to developing countries that face serious adjustment problems (i.e., the need to adjust production, consumption and trade patterns to reflect the drastic change in relative prices, particularly of energy), and that have agreed to undertake, often in conjunction with the IMF, needed policy reforms to facilitate the adjustment. At the same time the IMF has demonstrated increased willingness to incorporate longer range development aspects in its stabilization programs.

A number of actions have been agreed upon but have not yet been implemented. Two of these, the $40 billion general capital increase of the World Bank and the 50% quota increase of the IMF, currently before Congress for approval, will be important to the middle-income countries over the next few years.

The uncertainty regarding the future level of activity of the private international capital markets in the middle-income countries means that this situation bears careful watching over the next few years. In the interim, consideration of measures that could be used to facilitate private flows to these countries would seem desirable. Among the suggested possibilities is the use of a bilateral or multilateral financial guarantee mechanism, and ways to increase the co-financing activity of the IBRD have been under review.

It also is important that OPEC take

a more direct role in recycling resources to the middle-income developing countries. To date, the surplus OPEC countries have taken little action to directly lend to the developing countries, preferring instead to direct their "surplus" funds to the banks in the industrialized countries relying on those banks to recycle the resources to the developing countries. Although so far, the banks have efficiently handled this recycling task, the willingness and ability of private banks to continue to perform this function in a manner that will provide a sufficient and continuing flow of additional resources to the middle-income countries remains uncertain.

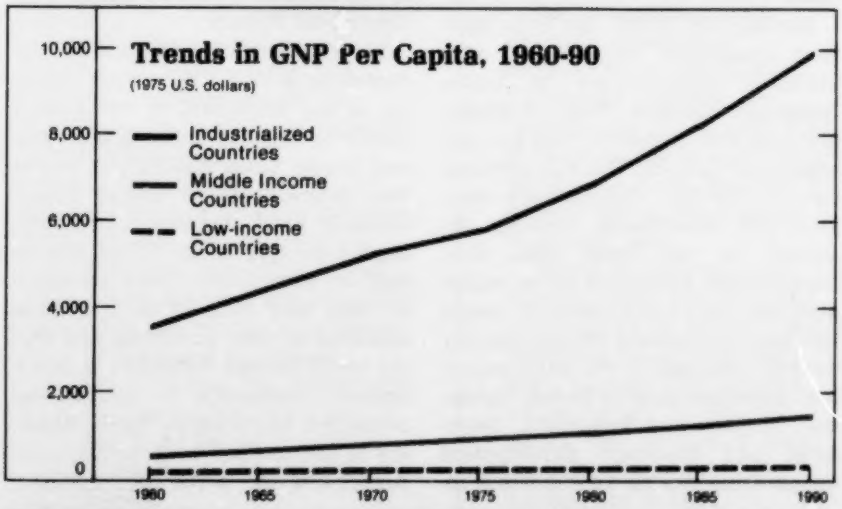
As of now, the United States has few bilateral assistance tools with which it can address the financing problems of the middle-income countries. Concessional development assistance is both scarce and by design directed primarily to the low-income countries. Some direct country-to-country aid is available to middle-income nations under the Economic Support Fund, but these resources are for use in circumstances where there are important security and/or political interests. As a result, few countries are eligible. Also, food aid, under the PL 480 program, is by legislation concentrated in the low-income countries and where provided must be justified in terms of identified food import requirements.

While higher levels of U.S. export credits through the Export-Import Bank and higher levels of investment insurance through the Overseas Private Investment Corp. may be useful to the middle-income countries, these are basically passive measures which facilitate private transactions. The AID Housing Guarantee Program (HG) is another relatively small program which facilitates the financing of approved housing for Third World low-income families through U.S. savings and loan institutions. The capacity to use these instruments to generate significant new resource flows to specific middle-income countries is very limited. Similarly, although the United States has recently increased use of reimbursable assistance, the levels are small, and the program by nature provides little additional assistance. Its applicability in countries facing severe financing constraints is limited.

With respect to private flows, the U.S. capital market is already relatively free of restrictions which would prevent developing countries from participating in the market. As a result, aside from the possibility of some form of guarantee mechanism and continued vigilance to assure that U.S. banking regulations do not impose discriminatory restrictions on LDCs, there appears little the United States can or should do to increase U.S. private capital flows to the middle-income countries.

The limitations on U.S. bilateral aid to middle-income countries have given rise to a number of suggestions—especially when the countries involved are experiencing economic difficulty and when bilateral aid would be important both to the United States and the recipient. Suggestions have included a bilateral, non-concessional lending program; a more flexible U.S. debt relief policy; and some form of U.S. official guarantee mechanism.

Given the likelihood that the financing situation of middle-income countries will not significantly improve over the next few years, and that their requirements will steadily increase, it would appear wise for the United States to explore again the merits of these and other possible means of helping these countries.



World Bank

Keith E. Jay is senior economic advisor in AID's Office of Economic Affairs.

VIEWPOINT

Latin America: Consequences of U.S. Neglect

by Otto J. Reich

In July, Otto J. Reich, Washington director of the Council of the Americas, a private association of more than 200 U.S. corporations doing business in Latin America and the Caribbean, appeared before the Subcommittee on Inter-American Affairs, House Committee on Foreign Affairs. Following are excerpts from his testimony.

Because of the council's nearly 20 years of involvement in Latin America and the Caribbean, we would like to use the Latin American experience to present our case that the United States must change its current policy of reducing aid to transitional countries.

The council's statement on this issue, therefore, is based on the following premise: that the present U.S. policy of excluding so-called "middle-income" countries from our development assistance programs severely curtails the U.S. government's role in assisting Latin America's development; that Latin America and its development are too important to ignore in this way; and that, therefore, the United States *must* find ways to involve itself much more actively in that process.

The reason for the inception of the current middle-income policy was, I presume, that these countries are sufficiently developed that they no longer need aid. Whatever the rationale, its effect has been to eliminate over 300 million of the 350 million people of Latin America from the U.S. assistance program. The arbitrary setting of a figure of per capita national income as the principal deciding factor in determining eligibility is fallacious. It does not take into account the unfortunate reality of poor income distribution. It is estimated that one-half of Latin America's population lives on less than $250 per year per person. It does not take into account that some of the world's poorest people live in the slums and rural areas of Latin America. It does not take into account the phenomenon of dual economies—parallel developed and underdeveloped economies existing in most developing countries.

We wish to emphasize that foreign aid is not a giveaway program, as it has been unfortunately characterized. It is not an international "welfare" program, and, in fact, with some imagination could be made even more effective and therefore less susceptible to those accusations.

During the 1970s, the U.S. business community encountered substantial competition in Latin American markets from products, services and investors from Europe, Japan and Canada. The U.S. percentage of Western Hemisphere markets and investments steadily declined. At the same time, U.S. development assistance to the region also was drastically reduced, and it has been completely terminated (for various reasons) in the most important countries such as Brazil, Colombia, Mexico and Venezuela. Technical and economic development cooperation can be an important instrument for promoting a country's commercial and investment interests in developing regions such as Latin America. Other countries are using their aid and quasi-aid as instruments to support their trading and investment interests, particularly in transitional countries such as Brazil, Colombia and Mexico.

In addition to the obvious economic interdependence, there are many other reasons why Latin America is important to the United States: shared political and social values, military security, and common problems whose permanent solutions can best be achieved through joint efforts, such as pollution control, illegal immigration and narcotics traffic control, peace-keeping, and elimination of poverty. It is to this last issue—poverty—that many of the other common problems are related. . . . Because the sad fact is that an intolerably high number of our fellow continental Americans still live in conditions under which no human beings should live. This is the time to redouble our efforts to assist Latin America, which is already pulling itself up by its own bootstraps out of the so-called Third World and into the First, the world of the free, industrialized democracies, so that it will not be subjected to the injustices and inequities of a Communist system.

In summary, the Council of the Americas believes that Latin America is too important to the United States to neglect; that a prosperous and stable Latin America is in the best interest of the United States because Latin America's problems impact directly on the United States; that we should help these countries or they may turn to more radical solutions to their problems; and that the trend toward reduction in development assistance to transitional countries, particularly Latin America is detrimental both to the Latin Americans and to the United States.

WHAT THE MEDIA SAY...

Energy conservation and reforestation must become top priorities in the less-developed countries where 40% of the world's hardwood forests may be denuded by 2000. The resources of the Pacific Northwest's lumber industry could aid in developing strategies to preserve the threatened forests.

A United States Agency for International Development report sent to President Carter in June urges international cooperation to promote reforestation and development of more efficient wood-burning stoves and kilns. Our region, more than any other, may be able to contribute scientific and technological knowledge to help salvage the threatened forests. Carter should tap this region's skills.

—Portland Oregonian

Steadily rising prices demanded for crude oil on world markets by the Organization of Petroleum Exporting Countries is tending to curtail needed aid to the less developed nations by the Western nations, a high-ranking official of Japan's ministry of finance emphasized. . . .

Takehiro Sagami, vice minister of finance for international affairs, told newsmen that the OPEC states, which are now accumulating so much money as a result of the price increases, "should bear the responsibility" for giving direct aid to the Third World countries. "This is only logical," he added.

—Journal of Commerce

The licenses will not be granted unless the government of the importing country, when fully informed about the product, had no objection, and unless the State Department found that the export would not hurt U.S. foreign policy interests.

—Washington Post

World milk output rose about 1% over 1979 levels in the first half of 1980, according to the latest estimates from the U.N. Food and Agriculture Organization.

Virtually all the production increases occurred in the developed market economies, FAO said. However, demand for milk and milk products showed the opposite trend, FAO said, weakening in the developed market economies—notably the United States—but increasing in the developing regions, Eastern Europe and the U.S.S.R.

—Journal of Commerce

Relief agencies coordinating emergency shipments of rice seed to Cambodia say they are "cautiously optimistic" that enough paddy land is being planted to move the country toward self-sufficiency in food next year.

However, shortages of farming tools and fertilizer and attacks by Khmer Rouge guerillas could keep the main harvest this autumn below target. Cambodia would then remain at least partially dependent on foreign aid in 1981.

—Washington Post

The World Conference of the United Nations Decade for Women, which set out three weeks ago to chart a program that would raise the hopes and better the lives of women everywhere, ended early today (July 31) in an atmosphere of bitterness and recrimination—at least for delegates from the United States and its few friends among the Western nations.

Protracted parliamentary battles over issues such as Zionism and racism obscured the true purpose of the meeting—the discussion of women's issues—in clouds of political rhetoric. The United States, which invested millions of dollars in sending its delegation, concluded by refusing to sign the plan of action that the conference finally adopted in the early hours of the morning.

—New York Times

Distribution of thousands of tons of food awaiting delivery to the famine-stricken Karamoja region of northeast Uganda has been suspended following an attack on a United Nations five-truck convoy by hundreds of armed cattle raiders.

The attack left five people badly injured.

International aid organizations and charities that have raised millions of dollars in donations to relieve one of the worst famines in Africa in the last decade are beginning to consider whether they can send staff to work in such a dangerous area.

—Baltimore Sun

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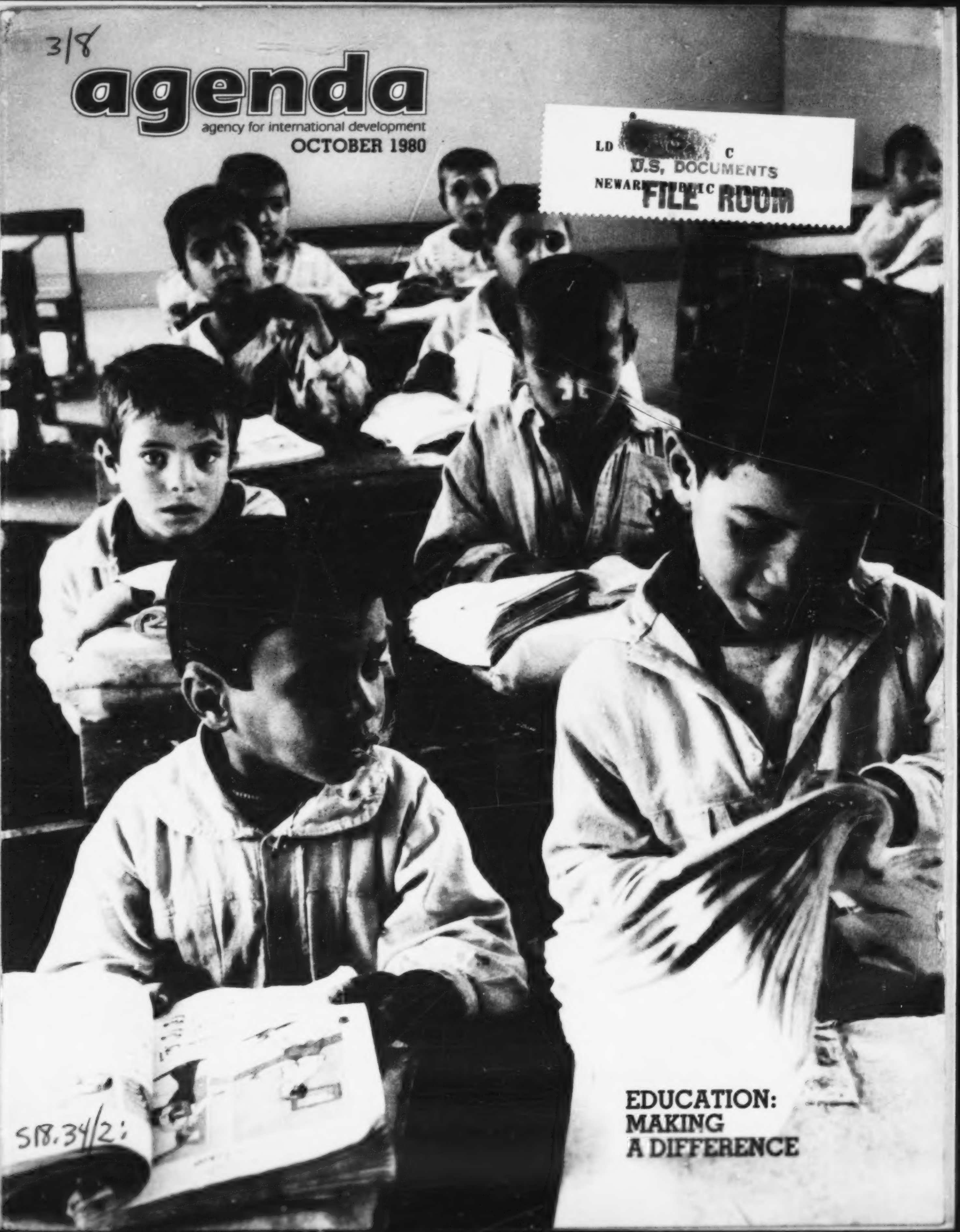

EDUCATION: MAKING A DIFFERENCE

S18.34/2:

DEVELOPMENT UPDATE

Diplomacy of the future: "It's not enough simply to relate as government to government," said Dick Celeste, director of the Peace Corps, recently. "Traditional diplomacy is in serious trouble because of terrorism, political upheaval and economic trauma. In the next two decades, we can relate best with ordinary people who have learned the language ordinary folks speak in another country.

Needed—more jobs. The chief economic advisers to President Lopez Portillo of Mexico caution that even if economic growth fueled by petroleum sales reaches 8% a year and continues with no interruptions, a maximum of 360,000 new jobs would be created yearly. Since the labor force increases by 650,000 yearly, this leaves an annual shortage of 300,000 jobs.

We are not alone: West Germany is now getting a dose of the U.S. problem of coping with foreign refugees. If applications to West Germany for political asylum continue at their present rate, reports the London *Economist*, more than 150,000 will be logged this year, 10 times as many as in 1977.

The population growth rate has decreased in many parts of the world, but not in Africa. Perhaps the following statement from an AID study helps explain: "In Burundi, the person who dies without children is buried with a piece of burned-out charcoal in his hand to symbolize the life and line which is extinguished. In pre-Christian religious terms, this was the ultimate calamity, for the person would never become an ancestor or have children to take care of him when he grew old. . . . In the traditional mentality, one 'never has enough children.'"

AID and U.S. business: Of the 1,136 technical service contracts and grants awarded by AID in 1979, 1,012 (89%) were awarded to firms, voluntary organizations or universities based in the United States. This accounts for $127.2 million of 98% of the total amount awarded.

Developing countries with large reserves of oil and natural gas are likely to become important producers of synthetic materials in the next decade." From a Worldwatch Paper, "The Future of Synthetic Materials."

Monster: Remember those plants with the pretty blue flowers that grew so nicely in your garden pond? You may call them water hyacinths, but people in developing countries call them monsters. Under suitable conditions of temperature and humidity, these floating clumps of plants can double their size in about four days. They can disrupt boat traffic, fishing, hydroelectric installations and irrigation. They have created critical problems in many parts of the Third World. Today, however, scientists are experimenting with ways of converting this liability to an asset. The three most likely uses for it are as fertilizer, animal feed, or energy (biogas or charcoal).

The locusts are back! In 1978 and 1979, locust outbreaks in Ethiopia and Somalia were contained after a difficult and costly international effort. But the threat of a major plague has arisen again, this time farther to the west, according to the U.N. Food and Agriculture Organization (FAO). New locust swarms, first spotted in the Lake Chad basin in January, have now drifted south to Nigeria and are swelling rapidly. They threaten agriculture in Nigeria, Cameroon, Chad and the Central African Republic. Niger and Sudan may soon be endangered.

agenda
agency for international development

Cover: More people in developing countries are studying in classrooms than ever before, yet close to 1 billion still cannot read or write. Understanding that an educated people can contribute to their nation's economic development, the United States is helping expand educational opportunities abroad.

Cover photo: Kay Chernush

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Douglas J. Bennet Jr., Administrator
Norman Sherman, Director
Office of Public Affairs

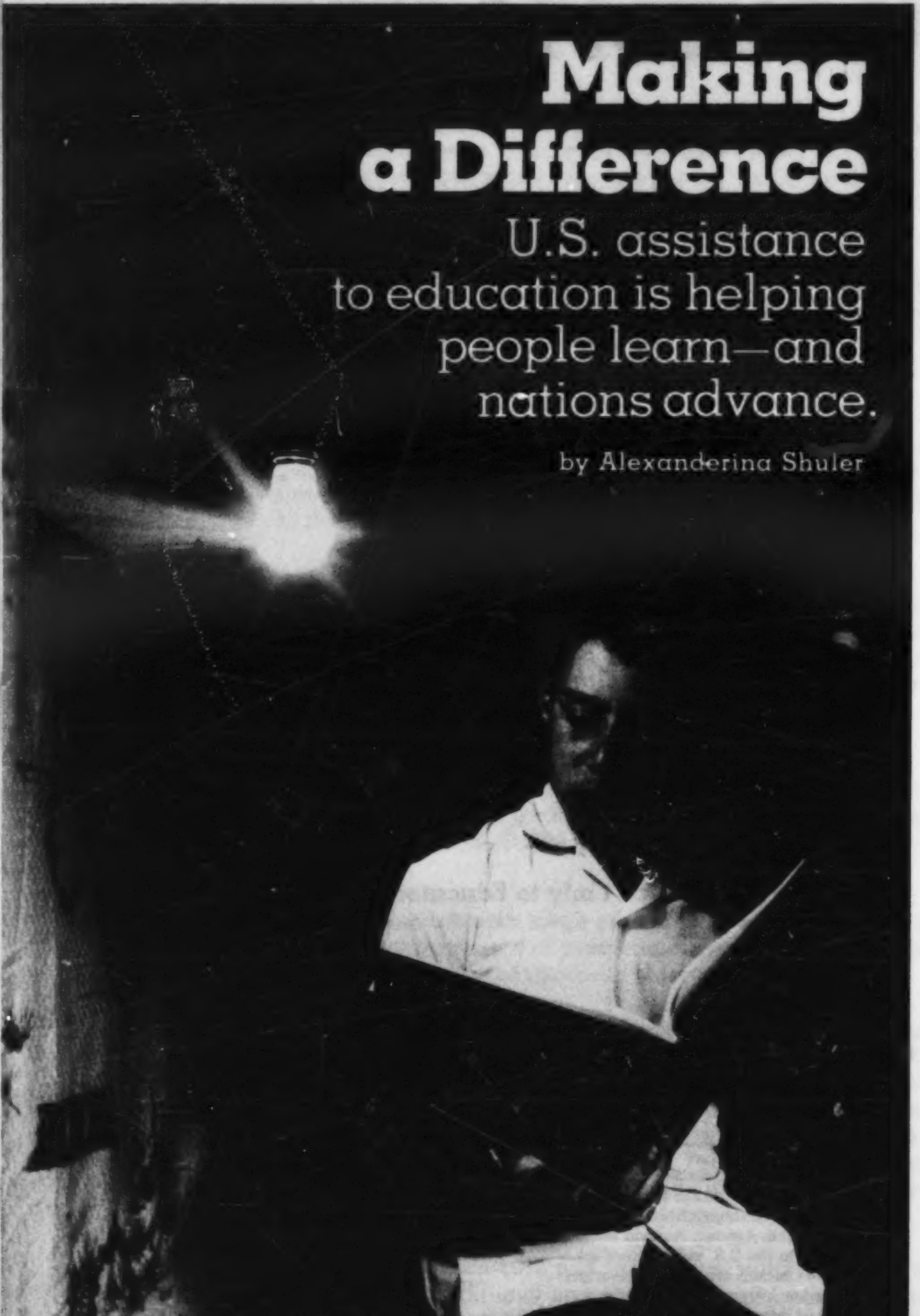
Press and Publications Division,
Office of Public Affairs
Agency for International Development
Washington, DC 20523
(202) 632-8351

Edward R. Caplan, Division Chief
Lee Mullane, Editor

Making a Difference

U.S. assistance to education is helping people learn—and nations advance.

by Alexanderina Shuler



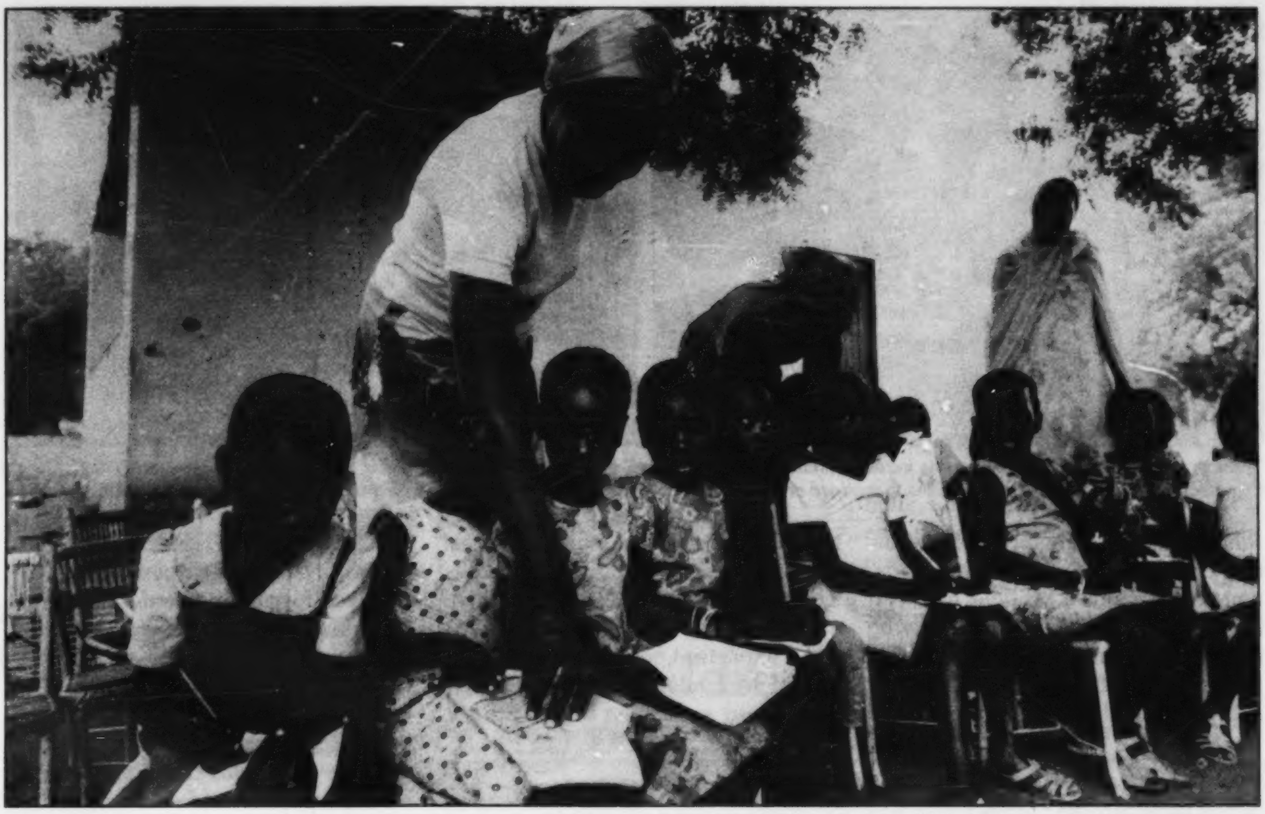
More Third World people are studying in classrooms and learning basic life skills than ever before. Yet, despite significant educational gains by developing countries —in 1970 there were 201 million children in primary schools, compared to 65 million in 1950—close to 1 billion people still cannot read or write. Women generally receive less education; many children drop out of school. For some who do stay, training may be irrelevant.

Without question the economic and social progress of a country depends largely on the development of its human resources. Therefore, in the interest of overall development, the U.S. government, through AID, is helping to expand and improve educational opportunities in less developed countries.

AID education specialists are assigned overseas to assist host government ministries identify and solve problems impeding education. These specialists are trained in administration, economics, teacher training, curriculum development, educational technology, vocational education and nonformal education.

For the coming fiscal year, AID's primary focus in the area of education and human resources will be on increasing the number of children receiving primary education; on improving nonformal education, on developing communications technology to reach rural communities; on encouraging low cost decentralized programs responsive to community needs; and on assisting Third World governments to mobilize and use local resources—tutors, facilities, materials.

Still, for most people in the Third World, learning is a luxury. A practical educational base at an affordable price is needed before education will come within reach for poorer people. Although AID emphasizes basic, lower-level education, the Agency also has a strong interest in helping countries overcome critical shortages of trained, higher-level personnel. For example, thanks to technical as-



These children in Sudan are fortunate. They are learning to read. For most people in the developing world, learning is still a luxury.

sistance in the form of training and advisory services, an AID project in Indonesia is helping local governments design, carry out and monitor development projects.

The Agency also encourages U.S. educational institutions to cooperate with developing country counterparts in a variety of endeavors, such as finding better ways to provide learning opportunities, especially to people in the rural areas. This includes enlisting the physical and intellectual resources of Third World educational institutions, government and the private sector.

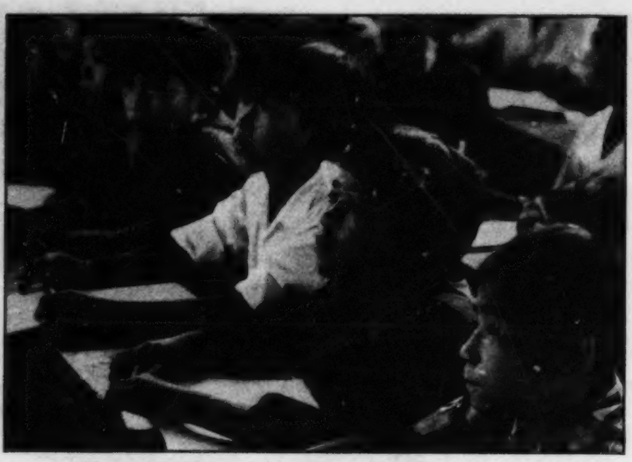
For example, Tunisian radio and newspapers are being used to teach better nutrition practices. In Guatemala, Eduador, Colombia, Ghana, Nigeria and other developing countries, AID has helped develop low-cost comic books and photo-novels to spread the word about family planning, new farming methods and proper health care.

Just as classrooms are necessary, so are teachers and materials and methods. Curriculum reform is basic to the development of educational systems that respond to the needs of the societies they serve. U.S. advisers are assisting the Ministry of Education in Swaziland revise the primary

Two Egyptian boys work on a textbook exercise. The U.S. is helping expand opportunities for education in poorer nations.

Close to 1 billion people cannot read or write. Many children drop out of school, and for those who stay, training may be irrelevant.

Through training programs like this one in the Dominican Republic, small farmers learn techniques to improve crop yields.



These Indonesian children pay rapt attention to lessons. More, qualified teachers are needed throughout the Third World.

school curriculum inherited from former colonial times. The new curriculum will provide practical material for the majority of the students who will not continue their studies. AID is financing graduate and undergraduate programs at universities in the United States and in other countries to train Yemeni students for various educational positions, such as school administrators and teachers.

An important part of AID's promotion of technology transfer is training abroad and in the United States. Since 1941, more than 200,000 individuals from foreign countries have received formal and nonformal training in food production, nutrition, population planning, health and education under the U.S. assistance program. The students return to their home countries to become government leaders, university professors, bank presidents and scientists.

A fundamental problem in most developing countries is the lack of trained middle-level manpower. More welders, mechanics and other skilled workers are needed. AID is helping fill the gap. In Morocco, for instance, two AID-funded centers are teaching women electronics, drafting, accounting and stenography. The centers also help graduates find jobs.

Education can make a difference:

- A Moroccan mother taught modern methods of hygiene and food preparation discovers her children are healthier.
- Because he received training in carpentry, a formerly unemployed worker in Nigeria now has a marketable skill that enables him to provide his family with adequate food, clothing and shelter.

Education and training is a means and objective of national development. It provides people with the knowledge they need to cope with real problems, boosting chances for a successful shift to a more productive and just society. ☐

A group of Tunisian men take time off from their work to attend a lesson in reading.

CHILD'S PLAY: Learning To Be

Home-based preschool programs may help fill a need for the children of the poor.

by Susan Super

Child's play is more than a matter of fun. It's an important learning process and an effective part of preschool education. And although most experts agree that the early years are critical to a child's development, preschool education often remains neglected, particularly for the poor of the Third World.

A now-classic report on education produced by a UNESCO commission in 1972, "Learning to Be," stated that development of preschool education should be a major goal of the 1970s. Some progress was made, but preschool services are still very limited.

For instance, only 10% of Peru's 4 million children under 6 years old receive any educational services, with most opportunities concentrated in large cities and available mainly to children from higher income families. The situation in much of Latin America is similar.

One promising approach is a "home-based" preschool program that Peru tested during the last two years. Through a grant to the Portage Project, AID assisted this pilot program in which trained para-professionals visit the homes of the rural and urban poor to work with preschoolers and to show and advise parents and other relatives how to "teach" their children and play with them at the same time. Weekly sessions of at least an hour also give home teachers a chance to discuss other needs with parents, offering practical suggestions in such areas as nutrition, health care, hygiene and food preparation.

Encouraged by the gains children made and by the positive response and interest of their families, the Peruvian government is continuing the program, though AID support ended in April. In addition, a private mining company has contracted for the government to provide the preschool services in its mining camp. The Portage Project (a Wisconsin-based group that has helped start more than 120 preschool programs in the United States and other countries) worked with the Peruvian Ministry of Education and other agencies in organizing and over-

Few families can afford toys, so teachers must be resourceful.

seeing the program and in training teachers. It will continue to advise the government on possible expansion of the program.

"Creating a childhood," is one way AID project manager Barry Heyman describes the effect of the program. He explains that parents from the poverty-ridden areas do not generally play or talk much with their children. Struggling to survive against the pressures of extreme poverty, parents may have little time for such concerns and often lack confidence in their ability to teach their own children.

"But during the program, families got involved much more than we had expected," Heyman admits. "I remember one grandmother who worked with the home teacher and her grandchild. At first they hardly talked and had little contact with each other. But after a few weeks had passed, it was a delight to watch them laugh, play and enjoy each other. Meanwhile, the child was developing new skills."

More than 90% of the parents felt the program helped their children, and most of them want to continue.

Some 250 families from two squatter settlements and four rural communities took part in the pilot program. Low-income communities that did not already have preschool services and had leaders willing to plan and run the program were selected.

Since the 1960s, Peru has had preschool programs where children get instruction at a community center, but the home-based concept is a new approach. "It's based on the idea that parents are a child's first and most important teachers and that home is an effective natural learning environment," says George Jesien of the Portage Project.

Special buildings aren't needed, so home instruction may be cheaper than building centers. The cost of the pilot program is roughly equivalent to that for kindergarten, although the cost will go down when the larger program gets established. The intangible benefits from getting parents and members of the extended families more involved with their children are even more important.

The project staff's first task was to adapt the official Peruvian education curriculum incorporating parts of the "Portage Guide to Early Education," to provide a practical planning guide suited to the culture and specific needs of each community. Local non-professional personnel, selected by people in the community, have three weeks of training before starting home visits. On the average, the urban teachers have a 10th grade education and the rural teachers fifth grade. Each home teacher visits 10 to 13 families every week for an hour to work with a pre-schooler and parent—the mother in most cases—or another family member. Professional "master teachers" monitor the home teachers through weekly meetings and visits to the homes and also work with two families to maintain first-hand contact with the program and community.

Few families can afford toys or other educational material, so home

Parents learn how to teach their children at home. Both parents and children are benefitting from the effort.

Food cans, wood, household utensils all become teaching tools.

The family joins in for a game and a lesson. Even a kick-ball can be a learning tool.

teachers must be resourceful, Jesian explains. Food cans, scrap wood, stones, household utensils—even agricultural products—may be used as teaching aids.

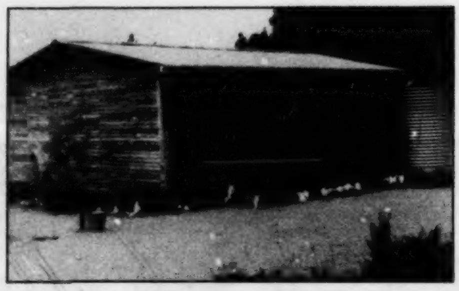
The home teachers follow a similar routine for each child. They start by testing the child and then plan a specialized course of activities—everything from drawing and learning colors to toilet training and dressing. Teaching takes place as parents perform daily chores. Each week, the teacher reviews the child's progress with the parent, discusses the next set of activities and suggests ways to practice them.

The simple tasks and regular attention the children receive pays off. Tests show that children in the pilot program were ahead of those in a control group in verbal, cognitive and motor skills. The improvements were most noticeable in rural communities.

Research on U.S. preschool programs, such as Head Start, indicates that children who receive such services stay in school longer, maintain interest in learning and do better than other children. A similar trend could be especially helpful to developing countries, like Peru, which are trying to extend education and literacy among their people.

"Preschool education is a new area for AID assistance," Heyman points out. "This pilot program showed that the approach can be efficient, low in cost and very effective." □

Susan Super is a former staff member in AID's Office of Public Affairs. She is now with the U.S. Forest Service.



Bridging The Learning Gap

Swaziland's schools are putting local culture back into the classrooms, purging reminders of colonial masters.

text and photos
by Emmett George

One little, two little, three little Swazi boys!" sing the children at the small, make-shift school just outside Manzini, Swaziland's second largest city.

The song is remarkably similar to one heard in U.S. preschools and elementary schools. In fact, it represents one attempt by an African country to bridge the education gap between its colonial past and current demands for education that reflect local language and culture.

The two wooden buildings are surrounded by waves of blue uniformed children who sing, chant and jump to cues provided by their teachers. It's part of the Ministry of Education's effort to adapt an educational system grounded in the British tradition to one that will reflect the Swazi heritage and a balance between practical and academic education. Achieving this balance will not be easy.

"There is now agreement that both Siswati and English will be used in the schools," says Bill Kromer, chief project adviser. "Until eight or nine years ago, Siswati was not a written language. Although it is spoken by most of the people in Swaziland, only the highly-educated can read it."

Over the years, Swazi schools have become more and more crowded, and teachers and parents found the previous system had become irrelevant. "I had not been in a single classroom where there were less than 50 students. The system has a problem keeping up with the demands for qualified teachers and better equipped buildings. Most of the schools have poor or inadequate teaching materials. It all comes down to a question of money," says Kromer.

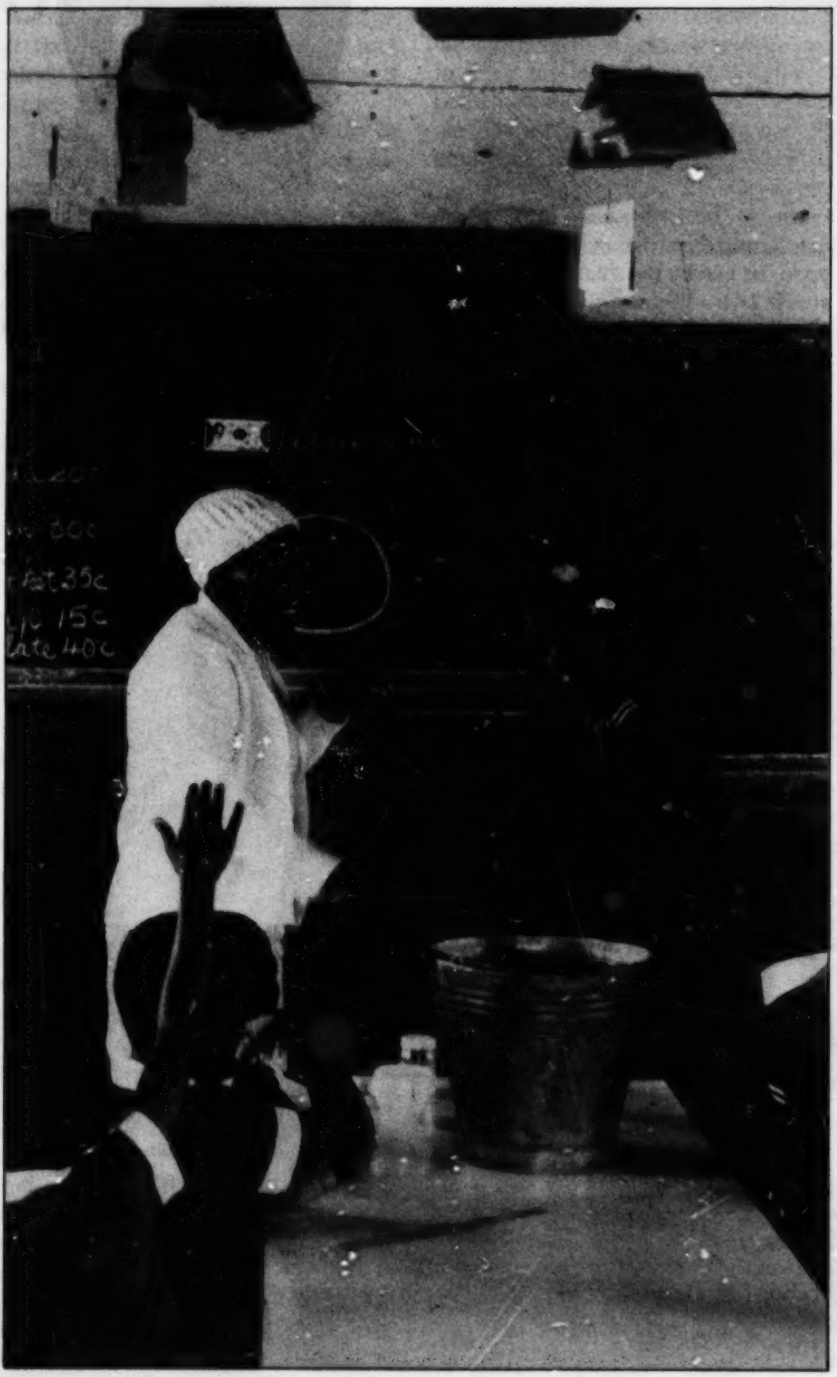
"Swaziland has a very responsive student body," he adds. "The children are very motivated. It's a joy to see. The teachers are also motivated, but they are undertrained. Some teachers have only a 'Form 4' education, equivalent to a secondary education in the United States. They are the qualified teachers we have in lower primary grades."

The students in the first and second grades usually range in age from 6 to 10 years making it extremely difficult to teach them at the same level. Many of the older and taller children are self-conscious and leave school to work on family farms, he says.

The task of developing the reformed curriculum is coordinated by the Primary Curriculum Unit based at William Pitcher College in Manzini. The project employs some 30 Swazis and four U.S. advisers. It already has selected four pilot schools in each of Swaziland's four districts and filled them with imaginative, culturally expressive trial texts and other teaching aids.

Under the first phase of the project, a new curriculum is being developed for use by the 22,000 first grade students throughout Swaziland. The PCU has worked out Siswati and science instructional materials and is nearly finished with the mathematics curriculum. Simultaneously, the educators have tested grade two and three materials and plan to proceed under the eight-year project with de-

Students respond to questions about the cost of common household items and the value of Lilangeni, the Swazi dollar.



veloping additional materials until they've done the same thing for all primary grades.

"The big challenge," says Kromer, "is to develop a revised curriculum relevant to the cultural needs of the Swazis and at the same time teach new skills for use in the modern world. There is a big push to improve instruction in science and mathematics. We're helping local educators incorporate practical curriculum content while maintaining academic value."

Since the project began in 1975, the Agency has provided $3.9 million. A consulting team from Eastern Michigan University has worked with Swazi counterparts to develop classroom materials. The PCU developed more than 75 different items that made up the new curriculum. Swaziland is providing $7.3 million to cover personnel and material costs and the World Bank has supplied $1 million for equipment, construction and printing of teacher guides and student texts. Numerous teacher workshops have been held to improve the preparation of Swazi teachers and to orient them to the new materials.

Currently, about 75% of Swaziland's primary-school age children attend school. Universal primary education is expected by the end of the 1980s.

Swaziland is bordered on three sides by South Africa and by Mozambique on the fourth. About 85% of its population of 550,000 live in rural areas. Foreign exchange comes from sugar, wood products, iron ore, asbestos and meat and fruits exports. The country's per capita income is about $590.

AID is providing $7 million in assistance in fiscal 1980 and plans an additional $7.5 million in fiscal 1981. U.S. economic assistance is designed to help Swaziland achieve self-sustaining and equitable growth. Education is high on Swaziland's list of priorities to meet that goal. ☐

Emmett George is a public information officer in AID's Office of Public Affairs.

As If Women Mattered

Changes in school curriculum could help improve women's status in the developing world.

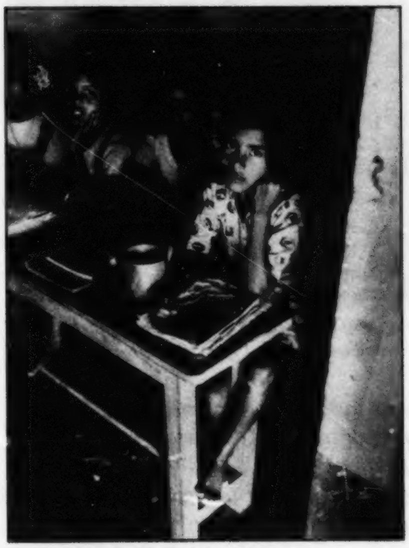
by Vivian Lowery Derryck

Recognizing that education is a critical element in development plans has led to a re-assessment of the formal education process in the developing world. One outcome of this new interest is that women, long neglected as a factor in development equations, are now the focus of myriad compensatory projects. However, while programs in health, nutrition, family planning and even agriculture, dot the development landscape, rarely does one encounter a formal education project specifically aimed at increasing the number of girls in school, altering the structure to accommodate young women with household and agricultural responsibilities, or revising curriculum to more accurately reflect the changing status of women in today's world.

New efforts to reach ever-increasing numbers of school-age children in the developing world have focused on avoiding the long-term investments in student time, budgetary costs, and teacher training that formal education entails. One answer has been non-formal programs. For our purposes, nonformal education is a structured program of learning in a non-institutional, non-school setting. It is usually within the participant's immediate environment, and its content is directly related to the participant's occupation and/or lifestyle.

But everyday classroom materials must be changed if sex-bias is to be eliminated. Any educator will confirm the basic truth that what students see in print is what they believe.

Illustrations in textbooks and other materials use males, especially if the model is using machinery. Approximately 75% of figures in American textbook illustrations are male, according to *Report on Title IX, State of Massachusetts*. A similar percentage of male-dominated illustrations appear in the textbooks of virtually every former colonial master, for they are the developers and sellers of both old and new texts.



This kind of discrimination is very subtle. It builds a case that women do not involve themselves with modern society to the extent that men do. Women are retiring; men are aggressive. Men explore; women harbor and maintain. Men are better at math and numbers, learn new languages more quickly, and read with better comprehension. These images, perpetuated and reinforced by textbook images, do, in fact, become truth. Male students in three public high schools in Monrovia were viewed by their teachers as more curious, more aggressive, more diligent pupils than their female classmates. The boys' scores on standardized tests corroborated the teachers' impressions. Textbook images help to establish, then reinforce, a self-fulfilling prophecy of female inferiority.

Curriculum innovations and textbook changes run into obstacles from several sources. Textbook committee members may have favorite texts from their school days. Bookstore owners, often having stockpiled for two years in advance, are adamant and effective lobbyists for maintaining current texts.

Curriculum revision does not take place in a vacuum. Three factors affect the process in a major way: teachers; students; and facilities.

Teachers are critical to the learning process, and much has been written about their role. In addition to imparting knowledge, they are role models, interpreters of social change and are themselves agents of change. If they live in rural areas, they are often the best educated persons in the village. The potential to influence children is enormous.

A multitude of studies from the industrialized and developing world allows us to profile teachers in LDCs. First, teachers in developing countries are not as well qualified as their colleagues in the developed world. While most LDC teachers have the equivalent of a secondary school diploma usually earned in normal school, many may not have completed secondary school. Given the limited capabilities of teachers, this means that several innovative strategies, based on teachers' mastery of subject matter are not possible.

Teachers the world over are largely conservative. Generally, they like to teach the subjects they were taught in the manner in which they were taught. Many resent new information and techniques. This conservatism may have serious consequences. For students it means that they will most likely be taught by rote, that the classroom will not be an exciting, stimulating learning laboratory, but rather a place of stuffy tradition that one must endure to get a degree and a white-collar job. Introduction of communications technology and media-based programs may also meet with some resistance. Evaluations of various radio education programs in Latin America are filled with anecdotes of teachers who had difficulty with reception during one broadcast and never turned on the set again. And, in India, one teacher felt that the most important priority was to keep the set in working order and therefore used it only when the supervisor visited her classroom.

In Pakistan, more and more women are going to college.

Teachers conservatism also means that new materials will not be easily introduced. Teachers may find new curriculum with an emphasis on sex equality ideologically and personally offensive.

This conservatism also means that teachers do not readily and easily benefit from in-service courses. Their instinct is to return to their tried and true methods.

The students are the second factor of importance. The typical LDC student is older than his or her Western counterpart. If the student is female, she is probably undernourished and saddled with household or agricultural responsibilities in addition to her school work. Male or female, the LDC student may or may not have electric lights by which to do homework. Given the limited experience and non-academic environment, curriculum should be basic and straightforward, stressing basic skills.

Homework for the adult literacy class must sometimes be done in the midst of other chores.

Finally, any curriculum revision effort must consider the facilities. In many of the open air schools of the tropics, the sounds of one classroom are clearly audible in another. Rain on a tin roof can drown out a lesson. Of course, if a building has electricity, more activities and experiments are possible than without electricity.

Identifying the target population is the first critical step for any curriculum revision effort. Development planners often fail to differentiate among different groups of women with varying needs and that is a mistake. If we are planning curriculum revision in formal schools our needs are quite different from those for curriculum interventions in a non-

A Mundu man in Sudan teaches his wife to read Zande, their native language.

formal program. If we are dealing with the formal system, the education level is important. Revising materials to include indigenous heroines, for instance, may be appropriate for primary school pupils, but too simplistic for high school students.

Within the formal system there needs to be a further distinction between academic and vocational curricula. Girls in vocational courses need the support of a bias-free curriculum even more than their sisters in the academic streams.

Rural girls have a greater need for bias-free curriculum, given the dearth of female role models and the lack of support for female education. In virtually every developing country, illiteracy rates for girls and women in the countryside are dramatically higher than for those in the city. Moreover, the problem is compounded by the debate among educators, developers and governments over the value of rural literacy.

One of the first concerns that inevitably arises in a discussion of curriculum revision is relevance. Relevance has two dimensions: comprehension and utility. First, can the child understand what is being taught; does the curricular example have any relationship to her experience? Second, is the subject and/or the idea of any use in her life, either in the home or the workplace? These are the major guideposts to any curriculum intervention. Taking them into account is especially important when sensitive materials are being introduced.

Curriculum developers commonly fail to understand culture and individual needs. This is a fault that plagues curriculum revision efforts worldwide, but the impact of LDCs is perhaps far more serious. Any such effort should include an assessment of a given economy and the employment prospects for women, cultural constraints impeding full integration of girls and women into all aspects of national life, and other sources of information and influence.

A fairly conventional method of introducing a new curriculum specifically to reduce sex-role stereotyping is the addition of new curricular modules that deal exclusively with women. While this method can be successful, there are dangers. Indigenous heroines must first, exist, and second, not have political ramifications: some heroines may be political anathema to the current regime.

Having determined that the goal is subtle changes in the curriculum to eliminate sex bias, curriculum developers should identify possible curricular impact points by grade. These impact points should be determined after careful application of learning theories of Piaget, Jerome Bruner or other professionals who have studied how young people learn.

The argument is often made that the Western learning theories are irrelevant in the developing world. However, several studies using the techniques and theories of Piaget and others in the developing world have produced results similar to those of Western researchers.

Curriculum revision to eliminate sex-role stereotyping is an intervention that is particularly difficult to initiate. Although one may strike a responsive chord among many educators, the argument will be made that eliminating sex discrimination is a qualitative improvement, and that developing nations must set other priorities.

But a well documented base line study with examples of the economic costs of discrimination against women in terms of labor loss, of tax revenue loss and lowered GNP, may move more development planners than will the moral and social arguments. ☐

This was adapted from a report by Vivian Lowery Derryck entitled "The Differential Impact of Educational Innovations on Girls and Women: Media-Based Instruction and Curriculum Revision, Phase II," prepared for AID's Office of Women in Development.

Don't Leave Education Only to Educators

Puzzled by descriptions of birthday parties, pets and summer vacations, Third World children often turn off textbooks.

by Martin Karchner

While laying the foundation stone for a new campus of Delhi University early in 1979, the President of India mused that despite 30 years of independence, two-thirds of the country's population still remained illiterate, and he bemoaned the neglect of basic education, when tens of millions of rupees went to higher education.

Released by the Indian government a few months earlier, the draft five-year Development Plan anticipated a doubling in the number of unemployed graduates and engineering diploma holders from about 700,000 in 1977-78 to over 1.4 million in 1982-83.

These two facts came to my attention last January, shortly after my arrival in Hyderabad, India, where I had gone to take part in a three-week seminar on Development Policy Analysis and Investment Decisions for senior Indian government officials.

Among the discussions I had been invited to lead, one dealt with "adapting education to development objectives." Given the vastness of the subject, I decided to focus on an aspect of the problem of which lack of basic education and unemployment among university graduates are but pernicious symptoms. This aspect, in my view, epitomizes the maladjustment between education and the socio-economic environment of most schoolchildren.

Of course, it would have been tempting to explore why, after three decades of increasingly sophisticated economic and manpower planning, the Indian higher education system keeps churning out graduates by the hundreds of thousands who will be unable to use their newly acquired skills—and this at great cost to society. According to one calculation, it would be possible to put 42 children through a year of primary school for the annual cost of sending one student to university. This is a predicament that India shares with a good many developing countries.

Instead of putting myself into the shoes of an education planner, I asked the seminar participants, as I am asking my readers now, to put themselves into the shoes, or rather into the chappals (Indian sandals), or, more likely, into the bare feet, of young Indian boys and girls attending their first years of primary school.

We can begin to do this by perusing the various English primers for Standard I and II classes that I bought in a Hyderabad bookstore specializing in textbooks.

Let us then imagine that we are starting to learn English, and that our parents have just bought the English primers that we will be using in class. Being very conscientious, our teacher selected the primers with utmost care, and chose new, thoroughly revised editions, from which any unsuitable material was eliminated. Hence, according to the preface, the primers fully meet the needs of today's Indian schools and pupils. They cover all the topics prescribed by the authorities. Not only do they carry the imprimatur of the state government's education director, they are also printed on paper subsidized by the central government.

Moreover, the editors and education specialists who produced the primers did their best to come up

Education is not a question of numbers or of budgets, or even of content or values.

with a technically sound product. As pointed out in the preface, they adopted the "phonic approach" thereby facilitating the process of learning new words and of expanding the vocabulary. They carefully graded the vocabulary. They devised exercises that children would attempt in a spirit of "joy and excitement," and included poems and folk songs designed to appeal to small children. (It becomes abundantly clear in the text, however, that the "folk" songs are mostly English.) Now, let us open the book carefully. On page 1, we find this pledge:

India is my country, all Indians are my brothers and sisters.

I love my country, and I am proud of its rich and varied heritage. I shall always strive to be worthy of it . . .

To my country and my people, I pledge my devotion. In their well-being and prosperity alone lies my happiness.

As we move through the book, we get to know the "brothers and sisters" who people its pages. Let me introduce them to you.

First, there are our classmates, our little friends and their friends. They are all of one skin color, rather fair. They go to school. They have time to play. They practice sports of various types. They have pets, and when they go on a trip, they take their pets along and feed them meals of milk and cream. They live in solid houses with large glass windows and gardens. They wear spotless, unmended, western clothes. During vacations, they go to the mountains or to the seashore. They eat bread, butter, and jam. They spill milk—for fun. Many have western names. Their uncle takes them for a swim—to the club's pool, no less. When they have a minor ailment, allopathic doctors in suit and tie come to their bedside.

Second, there are our friends' parents, their relatives, and friends. They own houses. They have small families. They are literate. The men all have white-collar jobs. They supervise their children's homework. They travel long distances, by car, by train, by plane. Men wear western clothes; trousers, ties, jackets, leather shoes; women wear saris. They live in an environment where the flora and the fauna are often strongly reminiscent of Europe! They give expensive presents (a gold ring to a 10-year old grandchild). They organize birthday parties for their children.

Since the birthday story appears in the revised 1978 edition as well as in the earlier editions, let us pause here to examine how the story and the illustrations have been adapted "to meet the needs of schools and pupils in India today." Here are some of the changes:

1. The boy's name is Sunil instead of Bert.
2. His mother wears a sari instead of a dress (his father still wears a suit and tie).
3. The house remains furnished in western style, and on a table one can now see a cake with candles.
4. Instead of a kilt and stilts, the boy receives a belt, a picture book, and a drum; moreover, in the new version, his school friends come in with their neatly wrapped gifts, and when they see him, they intone, "Happy birthday to you!"

Looking like neither parents nor relatives, we find a third group of people who seem rather out of place in our school book. Without exception, they have Indian names. They all wear Indian garments. They are superstitious, afraid, credulous; some are downright silly. Some are lazy; some work very hard. They do things for us, like the farmers—whom we must thank for the food they grow . . . for us. When these people become rich, it is through magic or happenstance.

Not what are the values we learn as we progress through the stories of the book? (Of course, we are just supposed to learn a language, but how could the words and the stories not convey values as well?)

As illustrated in the poem below, we learn about individual property:

My House

I have a little house
Upon a little hill,
And a garden far to see.
I have a little window
With flowers on the sill.
And it all belongs to me!

We learn to make the connection between private property and leisure and happiness:

A Happy Child

My house is red—a little house;
A happy child am I:
I laugh and play the livelong day,
I hardly ever cry.

We learn something about sex roles:

What Does the Bee Do?

What does the bee do?
Bring home honey.
What does father do?
Bring home money.
And what does mother do?
Lay out the money.
And what does baby do?
Eat up the money.

We learn to keep our school clean. We learn that work can make us happy when we do it for our mother. We learn to care for pets and not to harm animals.

Most often, however, we learn that words can be used frivolously, perhaps with rhyme, but certainly without reason. Witness the poem below, one of many examples:

Riddle-Me Ree

I have a little sister,
I call her Pretty Peep;
She wades in the waters,
Deep, deep, deep!
She climbs up the mountains,
High, high, high;
She has but one eye.

As Indian children struggling to master English, how can we make sense out of a poem like this? While working with illiterate adults, the Brazilian teacher Paulo Freire found that they began to read very quickly if the first words they decipher deal with important issues, such as access to a well or interest on the debts owed to the landlord. It stands to reason that children, too, would acquire reading and writing skills more rapidly and lastingly if the words and the stories used in the textbooks had some meaning in their lives.

From the books we have, however, we learn very little about the toils and concerns of our parents, about the struggles and achievements of our forefathers, about the joys and pains of the poor, or even about the existence of poverty and class structures.

In fact, let me ask you now: If we do not belong to that tiny section of Indian children whose classmates and parents we have met throughout the pages of the books, what have the learned educators who used their sophisticated techniques and their best talents to produce these books done to us? They have shattered our view of the world, our world. They have told us that we cannot trust our senses, that what we see and experience does not exist. They have made our parents look like failures, since they cannot offer us birthday parties, take us to the club, or present us with pets. They have negated the existence of our problems (lack of proper clothes, books, place or time to study), as well as our parents' difficulties and worries (ill health, lack of employment, proper food, sanitation, shelter). They have raised our aspirations without giving us the means of fulfilling them. Far from dispensing "joy and excitement," they have filled us with anger and frustration.

Education is a fundamental political issue, which educators are rarely trained to tackle.

And even if by chance we do belong to the privileged few, have the educators not also done us a great disservice by cutting us off from all those brothers and sisters who make up India and by depriving us of any meaningful insight into their lives?

In the discussion that followed our foray into the world of Indian school children, the seminar participants and I explored the extent to which the textbooks that I had found were representative. Some participants thought I had spoken of their experience; others questioned the validity of the small sample and of the conclusions based solely on English readers.

Subsequently, the co-director of the seminar reviewed two Urdu Language Compilers. His description of the books indicates that they are better adapted to the interests of Indian children and that the upper middle-class bias is somewhat less pronounced.

Nevertheless, this bias continues to pervade the selection and moral of many stories. For instance, one lesson entitled "Our School" depicts a school that is better equipped than most in India, and the accompanying illustration shows boys and girls in shoes, socks, and neat colorful dresses, and the teacher in a closed-collar coat and trouser suit. Another story about health puts the blame for falling ill squarely on sick people themselves, arguing that they deliberately neglect the things that would make them healthy: fresh air, clean water, simple food, light exercise, and timely rest. Blaming the victims is, of course, an age-old device used by the better-off to keep a clear conscience.

In addition to the representativeness of the textbooks, we also talked about who should be in charge of preparing textbooks for children and adults, what values they should project, what role local communities, as opposed to education specialists, should play in deciding the content of education, and what contribution formal education makes to people's acquisition of useful skills in a developing (and developed) society.

The conclusion was inescapable: that education was not just a question of numbers (enrollment ratios, availability of classrooms and teachers) nor of budgetary allocations, but more importantly, a question of content and values; that ultimately it was a fundamental political issue, which education specialists were rarely trained to address, let alone to tackle. □

Martin Karcher, of the World Bank's Economic Development Institute, is a senior lecturer in its national economic management courses. His article is excerpted from "Report", a World Bank publication.

Children At Work

For the millions of poverty-stricken children forced to work, "childhood" is a term with no meaning.

By far, most children who work do so in agriculture, and are rarely protected from overwork or injury.

José Antonio is 12 years old. He is a street trader—he brings money home. José works after school, as he has for five years. Each day he goes to his appointed spot next to the other traders, almost all grown men, in the Barranca del Muerto, Mexico City. There he sells a special brand of bubble gum. His routine varies little from day to day. He finishes school about 12:30 p.m. and begins work at 1. Sometimes he returns home as late as 8 p.m., when his gum is sold out. He gives his mother his earnings. She gives him back enough for more supplies.

José is typical of millions of children in the Third World whose survival depends on the coins they earn.

But he is one of the lucky ones. He has something to sell and a place to do business. He can go to school, and return home at night. He has enough to eat. The alternative for many other children is back-breaking labor, exploitation, illiteracy, malnutrition, sickness and often death.

Child Labor. It's increasing, with all its horrors.

To a great or lesser extent children in every society have always taken part in economic activities necessary for survival. Usually working with their families, on the farm, in shops, they gradually learned the roles they would later assume as adults. But there also always has been another side to the story—that of the children of poverty who suffered in dangerous, monotonous, strenuous jobs.

The notion that child labor is a social problem, a phenomenon hindering the harmonious physical and mental development of the child, is relatively new. In Western nations the change began in the 19th century, when it became common for children to work in factories, especially textile mills. From the age of 6 and on, they toiled in abysmal conditions—some 14 hours a day and with almost no protection against accidents. Even as recently as the start of the 20th century, some children were laboring in mines or were kept busy at home on work sent to them by manufacturers. Economic, moral and legal pressures essentially put an end to it. Yet even today Americans are shocked by reports of near slavery of children and adults in some migrant worker camps.

In the world as a whole 52 million children under age 15 are working today, primarily in poorer nations, according to a study recently released by the International Labor Organization. The figure may be too low. Data often fail to show the true number of young children at work, since it is illegal to employ them; moreover, children who both go to school and work are not counted, says the ILO.

It has been impossible to stamp out child labor abuses in developing countries, despite the fact that most have laws on the books to that effect and despite increasing recognition of its negative effect on national development. It is taken for granted that children have to work and considered perfectly normal that they should be paid low wages. Children play an important productive role within their families, both in rural and urban areas. Within an often distorted economic framework, the working child must support old, ill or unemployed parents.

From country to country throughout the world minimum age for legal employment generally varies from 12 to 16 years. But in some, children may

In many countries industries depend on low-cost labor provided by youngsters, and in a distorted economy, the young may end up supporting parents.

work at a younger age in non-industrial jobs or light tasks. On the other hand, in "dangerous" or harmful occupations, the minimum is usually higher. Domestic work usually is not covered.

Among the examples of national practice:

Japanese children are not allowed to work until age 15—the age at which they no longer have to go to school. However, children under 12 years may work after school in certain specific jobs not harmful to their health and welfare.

In India, there is no one general provision; the minimum age may be from 12 to 15 years, depending on the activity.

In Senegal, children are forbidden to work before age 14, but the law permits those between 12 and 14 to do domestic chores or light and seasonal tasks if the father or guardian agrees.

In a few countries, Morocco for example, the law contains protective clauses. The minimum working age of 13 applies to all kinds of jobs, including industry, but employment in dangerous jobs is forbidden for all under age 16.

By far most working children are found in agriculture, both in developed and developing countries. In about 50 countries agriculture in principle is covered by the same minimum age requirements, but in many nations the relevant provisions are limited or apply only to part of the agriculture sector if at all.

And in developing countries the so-called "informal sector" claims an enormous number of children, not unlike José Antonio. For him none of the legal provisions apply and his relationships with the other street workers are dictated by custom.

When do children start work? An ILO inquiry in India revealed that about a quarter of all children working started between ages 6 and 9; nearly half between ages 10 and 12; a quarter between 12 and 15. In Portugal a similar survey, this time of 20,000 workers in the mechanical engineering field, showed over half of all women workers had begun before age 15.

Women and children in Nepal work side-by-side carrying fill dirt for a road under construction. The woman may be paid; the child probably will not be.

Poverty is the driving force behind child labor. But the basic cause is usually a combination of factors. In Nigeria working is looked upon as part of the traditional education process. But in Thailand parents are often forced by economic pressures to send children off to jobs—sometimes never to see them again.

Tongpun Panuram, 14, was a slave worker in Bangkok until she was rescued by social workers last month. According to an article in the *Washington Post*, Tongum had been imprisoned with 15 other teenage girls in a rundown weaving plant south of the city. Her story went like this, according to the *Post*:

"'We got up at 5 a.m., then worked the looms from 8 until noon. After lunch, we worked from 1 until 6 p.m. Then they gave us supper and let us take baths, and we worked again until 10 p.m. At night, they kept us inside.'

"In the past 18 months, police have raided at least seven factories like Tongpun's and freed more than 140 children, as young as 10 years old. Some were sick and partially crippled from long hours in poorly lit and ventilated factory halls where their work included making batteries, wrapping candy and sewing cheap shirts. There were reports of children—the unlucky ones not rescued—who had died from sickness, exhaustion and injuries.

"Labor Department officials say they are doing their best to stop this exploitation of minors, which is illegal under Thai labor laws. Still, many sweatshops continue to oper-

Pakistani boys put tree seedlings into plastic bags of earth and sand for transplanting.

ate, with one department estimating that as many as 5,000 children under 12 are employed illegally in factories.

"The trade in children begins in villages of northeastern Thailand, a region with the lowest per capita income of the country. Each spring, 'brokers' visit many of these communities telling heavily indebted farmers of good jobs for their children in Bangkok.

"Under normal circumstances, the broker pays the child's parents a lump sum of $50 to $150 when the child leaves the village. In return the broker is to get one year's work from the child and can transfer him or her to whomever he wants."

A broker came to Tongpun's village, too. When he left, he took 40 girls with him—girls are generally more desirable than boys; they're considered more controllable.

Number of working children less than 15 years old

Area	Total (millions)	Unpaid family workers[1]	
		Millions	% of total
World	52.0	41.2	80
Southeast Asia	29.0	23.2	80
East Asia	9.1	6.4	70
Africa	9.7	9.2	95
Latin America	3.1	2.0	65
Europe	0.7	0.4	50
USSR	—	—	—
North America	0.3	—	10
Oceania	0.1	0.1	85

[1] Includes a very small number of persons working on their own account.
Source: ILO, Bureau of Statistics and Special Studies.

Children, once refugees outside Guinea Bissau, are building a school in their home village.

Tongpun was apparently sold by the broker. At the factory where she was found, Tongpun said she and the others worked 12-hour days. "The girls operated old and poorly maintained looms and spindles," said the *Post*. "One girl once caught her arm in a spindle, opening a gash that became infected. No doctors were on call, (so she like other) sick or injured children simply lay down until (she was) better," according to the *Post* story.

Child labor in the cities of developing countries is growing, reflecting the increasing flow of people from the countryside. In factories, children usually work in packing, glueing and labeling. In cigarette factories in Asia, children clean and cut tobacco and roll cigarettes. From northwest Africa to south Asia, children are an important source of labor for the

Masai boys care for their tribe's herd of cattle. It is a heavy responsibility; the cattle sustain the life of their people.

traditional carpet industry. Their earnings go directly to parents or guardians.

Studies in Delhi, Madras, and Bombay, India, give a harrowing picture of the working and living conditions children endure. An inquiry concerning children under age 12 working on plantations showed that 25.6% were in an advanced stage of vitamin A deficiency. One in 10 showed signs of riboflavin deficiency. Anemia and chronic bronchitis are common among children who work in the cigarette industry.

In Indonesia, labor inspectors visited 800 businesses in six provinces in 1976 as part of an inquiry into child labor. With some difficulty, they were able to ascertain that:

- Children are employed in handicrafts, food, building, textile, cigarette and soap making industries, in labelling and cleaning bottles, transporting and stacking bricks, and cleaning floors.
- Most children have received some education and are still going to school. But in Central and East Java and North Sulawesi, most children have never been to school at all.

In Pakistan the carpet industry employs many young girls. Their tiny fingers fly over the looms, and tie tighter knots than adults could. This makes the carpets last longer, look better and sell for higher prices. The little girls learn quickly, work faster and can be paid much less than adults. Since the demand for carpets is great, the government doesn't discourage the practice. Few families can afford to send children to school anyway.

Even when children in Pakistan or elsewhere do go to school, their fatigue cuts their concentration; they repeatedly fail or at least do not progress. The children have neither the time or the energy to learn; they are unable to develop their minds.

Granted, there are some economic benefits to allowing children to work, but what are the trade-offs? How will the child worker of today fare in the years to come? That will depend on the character of the child, the kind of job, the working circumstances and on his or her personal hopes for the future, says the ILO report. Sometimes, a child is able to set up as his or her own employer, or to graduate into more skilled work. But as a rule, when a child performs stultifying, precarious and insignificant work from an early age, more than likely he or she will never acquire any genuine qualifications for skilled work. This together with the disinclination to learn that often comes with immaturity can block opportunity for jobs or social advancement. Moreover there is a very real danger that children on the street will drift into drugs and prostitution.

Many of the jobs children do are physically harmful. Their growing bodies suffer continually from fatigue, over-exertion, lack of hygiene and lack of proper food. Excessive heat, work in bad weather, and continuous contact with dust cause conditions that can be chronic and difficult to cure—tuberculosis and heart disease among them. Malnutrition, lack of protein and amino acids, can damage the central nervous system. Physical deformities also are part of the toll levied on children. Heavy loads and awkward body positions affect growth—especially of the bones, which are still soft in children. When a child is regularly bent double under a heavy burden or is obliged to stay in an unnatural position for long periods, deformation of the spinal column, pelvis and/ or thorax can result. There is no doubt that employment—not to mention the risk of accidents—is both directly and indirectly harmful to the child and that its results will be carried over into adult life.

"Children are not adults in minature. Nor are they machines or beasts of burden."

Nations of the world are making efforts to improve the quality of life for their children. Compulsory education in many developing and developed countries has helped limit abuses of child labor. Most countries have legislation outlawing employment of children under a certain age. But children are still abused. They are hired illegally, overworked and even sold by their parents. They are going out on their own to struggle in an adult world. They are not going to school. Legislation is not enough to protect them or to give them a chance to develop.

Summarizing its findings the ILO reported:

"It is self-evident that when child labor is purely and simply prohibited by law, the law cannot then introduce measures to protect child workers, since they do not legally exist. Until the present legislation can assume the truly protective role for which it was devised, special measures should be taken now to protect children.

"Any government that wants the respect of the world community should find a way to enforce its own laws on child labor. A complete turnabout in people's attitudes is needed. It must be made clear that children are not born to undertake stultifying work because their physical and mental characteristics are not sufficiently developed to enable them to cope with the demands made on them . . . On the contrary, they need to lead a life in which education and recreation play a large part.

"Children are not adults in miniature. Nor are they machines or beasts of burden." ☐

A young employee in Colombia watches his co-worker smooth wet clay into brick molds. Finished bricks will be used for homes.

This has been adapted and excerpted from "Children At Work,"© International Labor Organization 1979, edited by Elias Mendelievich.

VIEWPOINT

The Power of Choice and the Problem of Malnutrition

by Carol Jenkins

Researchers often refer to the complex factors underlying the choice of what to eat as *foodways* or *food habits*, both terms connoting shared and repetitive behaviors, as in folkways or drug habits. But eating involves less habitual and homogeneous patterns than these terms imply. Choosing specific foods to cook and serve is a daily process based on changing factors.

The influence of weather, seasons, soil conditions, and market factors on the use of certain foods are easy to chart. But there are less apparent influences, including availability, money on hand for food, taste preferences, preparation methods and storage. Events that occur periodically, ceremonies for example, are easily overlooked in nutrition surveys. Moreover, it usually takes considerable knowledge about a people before cultural beliefs about food—taboos included—are fully understood. Even recipes for traditional and newly-acquired dishes represent a body of cultural information transmitted from generation to generation or group to group. Food and nutrition workers who are responsible for intervention programs need to know the range of variation in food related behavior and why this variation occurs.

Do Italian-Americans really eat more pasta than do other Americans? Do Afro-Americans prepare soul food daily? These and other so-called food habits are now outdated, reserved today in most families, for weekend or ceremonial occasions. In developing nations, food-related behavior also is changing. For example, among people in Central America, a shift from indigenous staples such as corn and beans to flour or rice not only has far-reaching nutritional significance, but social significance as well. In Mexican and Guatemalan villages, the gradual change from daily corn tortillas to flour tortillas or bread often reflects increasing incomes, greater access to national media such as radio, and a changing ethnic identity, from Indio to Mestizo (or Ladino). A new road into a community may quickly change diets, and the preferences of one's parents may give way to the stronger appeal of modernization. Moving into cities often drastically affects diets; peasants must learn to adapt to new economic pressures and varieties of available foods.

Slow change also occurs, usually under more stable conditions of social interaction. For example, in the Central American nation of Belize, wheat, flour and rice are gradually displacing corn and beans in the daily fare—the result of the influence of Caribbean Creole cultures on indigenous peoples. Among the Garifuna or Black Carib people, various preparations involving manioc (cassava) have formed the core of the diet, along with fish, for many centuries. Today this is changing. Younger women now feed their babies mashed potatoes or packaged infant cereals, preparing manioc only occasionally and in Creole recipes. Recent research also reveals that with changes in diet come changes in health care, traditional taboos, and infant feeding—particularly breastfeeding.

Whether nutritional status also changes for better or worse as food-related behaviors change is a problem for investigation, not for speculation. Too often we read of the westernization of diets in the context of increasing malnutrition without clear explanations of why this is occurring. Many recent studies implicate the use of contaminated bottles in infant feeding without looking further for underlying variation in this pattern or its causes. In some circumstances, bottle-fed babies may not be at a disadvantage, especially where education, smaller families, and better health care accompany the mother's changing feeding choices. Clearly, in economies where preparing food requires hard work, the infant feeding bottle is an innovation that gives women flexibility and periods of rest.

In certain areas, the combination of traditional and new foods may prove better than either alone. Adding milk (instead of water) to cassava lab, a manioc starch-based gruel preferred by rural Garifuna women in Belize as the ideal weaning food for infants, has increased the nutritional value of the traditional food, which has great symbolic and emotional significance. Wise public health nurses have encouraged women to prepare the lab thickly and to serve it by spoon.

As literacy and knowledge of the world beyond the village reaches younger men and women in Third World nations, changing values and aspirations may precede real material improvements. Prestigious foods and utensils such as infant feeding bottles or even blenders may be encountered at distant market places. The appeal of labor-saving foods and devices should not be overlooked when nutritional intervention is planned.

Carol Jenkins is a doctoral candidate in nutritional anthropology at the University of Tennessee. In 1979 she was part of a nutrition assessment team working in Belize.

WHAT THE MEDIA SAY...

Arab countries are learning some of the harsh lessons of prosperity.

Under pressure from the world's poor nations at the current United Nations special session, the Arab oil producers have already demonstrated their eagerness to aid the Third World. But they face some of the same difficulties that have long hindered Western countries with similar good intentions. As a result, Arab loans to developing countries fell to $1.3 billion or $1.4 billion last year from more than $5 billion in 1976.

"We would like to give more," says an official in Saudi Arabia's ministry of finance. "But some of the countries that need help most don't have the management and infrastructure for efficiently absorbing any more funds."

—Wall Street Journal

Maj. Gen. Ziaur Rahman, president of Bangladesh, has been uttering heresy at the United Nations bargaining sessions between rich and poor. Unlike most spokesmen here for developing countries, Gen. Zia does not think that the task of aiding the poor is exclusively a Western affair.

He wants the oil-producing countries to help by halving the price of crude for the poorest importers. He even thinks the Soviet Bloc should pitch in by doubling its foreign aid, which is limited.

—New York Times

U.S. agricultural exports will set a record this year and could climb even higher in 1981, according to a government forecast . . . The Agriculture Department, in its first prediction for the 1981 financial year which starts on October 1, estimated that farm exports will total 40 to 45 billion dollars.

—Reuters

Most Americans, we suspect, have mixed feelings about U.S. aid to foreign countries.

On the other hand, we are, by and large, a compassionate people, and when we see pictures of starving children in foreign countries, we want to help. And, without analyzing it too deeply we also have a kind of gut feeling that, as a rich nation, we have some obligation to help developing nations rise out of poverty and into the 20th century.

On the other hand . . . the phrase that is apt to be heard is that foreign aid is "pouring money down a rathole."

That some of it (foreign aid) has been misspent, some has gotten into the wrong hands, and some has been wasted, is true and regrettable, but beside the main point, which is promoting a world in which all nations can co-exist peacefully and go forward toward what is hoped will be a new era.

Perhaps the efforts will be futile, but they must be made. The alternative is too horrible to contemplate.

—Mail Tribune
Medford, Oregon

A poor, landlocked African country with a national economy based almost exclusively on subsistence agriculture is about to turn its natural abundance of large white flowers into a big business.

The country is Rwanda. The flowers are pyrethrum, the source of powerful but biodegradable pesticides.

Rwanda's action could affect food production and public health everywhere.

World demand for pyrethrum—the source of an environmentally safe but highly toxic pesticide with increasing use in agriculture, forestry, and public health projects—consistently outstrips supply.

—Christian Science Monitor

Tucked under the shoulder of West Africa, Cameroon is one of Africa's unheralded success stories.

Economic growth charges ahead at an annual rate of 6%. Per capita income has doubled in the past decade. International debts are low. Enough food is grown to permit export of a small surplus.

Helping fuel the burgeoning $4.5 billion a year economy is a small offshore oil field that earns $50 million a year. Also contributing to the nation's economic health is substantial foreign aid, particularly from France (in calendar year 1978 France's assistance totaled $7.16 million; Belgium gave $20.8 million. U.S. assistance totalled $2.2 million for fiscal year 1978) and a tight rein on foreign debt. . .

—U.S. News & World Report

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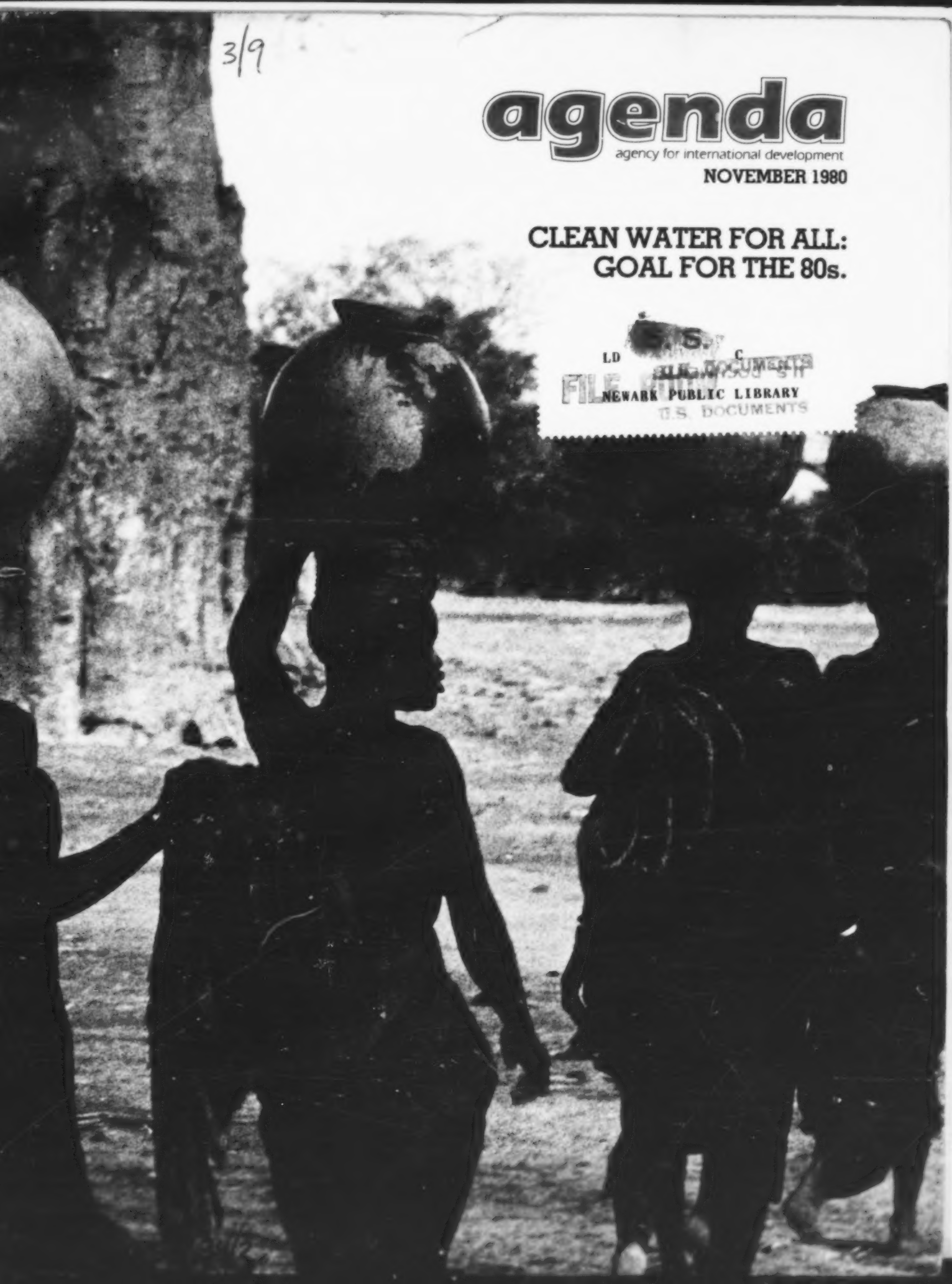

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NOVEMBER 1980

CLEAN WATER FOR ALL: GOAL FOR THE 80s.

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DEVELOPMENT

UPDATE

Time, the essential ingredient: "You do not make a (Third World) country self-sufficient in energy or food in one or two years," says Munir P. Benjenk, a vice president of the World Bank. "You need to get them to plan, and to do that, they need time, and for that they need money."

And the poor get poorer . . . "An upward revision of drug prices will upset the vast majority of the Indian people already hit hard by the soaring cost of living, but such an escalation now seems inevitable. The major factor, of course, is the sharp increase in the cost of raw materials and other inputs following the spurt in the prices of petroleum or products." From the *Tribune*, Chandigarh, India.

Going, going . . . Haiti has less than four years' supply of wood left, at the country's present rate of consumption, says the U.N. Food and Agriculture Organization (FAO). About 40% of the income of the urban poor is spent on charcoal to cook their food.

Horns of a dilemma: "In North Yemen, reports *Life Magazine*, "rhinoceros horns are carved into handles for daggers and worn by men as a sign of status. In India, the powdered horn is prized as an aphrodisiac. In China it's a cure-all. Now the black market demand, along with a worldwide shrinkage of habitat, threatens the survival of all five Asian and African species of rhinoceros. In Kenya, the black rhino has dwindled from 20,000 to 1,500 in the last 10 years. . . . A pair of horns brings more than $100 ($5000 per pound in Hong Kong), and poachers still find hunting them worth the risk of imprisonment. . . . The World Bank has lent Kenya $2 million for antipoaching efforts. The World Wildlife Fund is trying to raise $2 million for an Operation Rhino. So far, however, the traffic in rhino horns has proved no easier to control than illicit drugs."

It's not just the lack of food, it's the lack of the right kind and mix of food that contributes significantly to Third World malnutrition, writes Alan Berg, senior nutrition adviser to the World Bank. "The common official response to the problem of food and nutrition has been to grow more food," he says. But "nutrition-oriented food production programs, in conjunction with steps to increase incomes of the poor, are the key elements in meeting nutritional needs in the longer run."

Something to howl about: Pet food was a $3.3 billion business last year, accounting for 7.13% of all food sales. . . . That's nearly four times as much money as was spent on baby food, more than twice the amount spent on cereals, flour and macaroni products for people—and, we add, approximately the same amount AID spent on its foreign economic assistance program.

agenda
agency for international development

Cover: Nov. 10, 1980 marks the start of the International Drinking Water Supply and Sanitation Decade. The goal of this U.N.-sponsored, worldwide effort is to ensure safe, clean water for all by 1990. See articles, pp. 2-13.

Cover photo: J. Pickerell/Peace Corps

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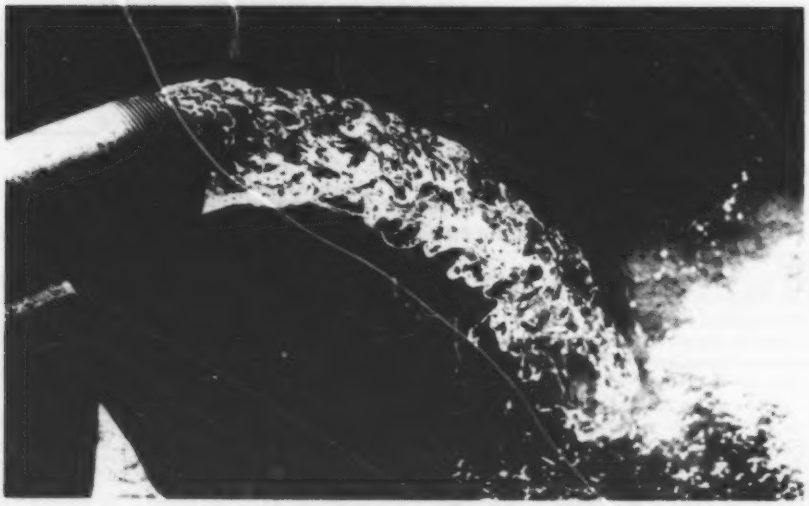
Douglas J. Bennet Jr., Administrator
Norman Sherman, Director
Office of Public Affairs

Press and Publications Division,
Office of Public Affairs
Agency for International Development
Washington, DC 20523
(202) 632-8351

Edward R. Caplan, Division Chief
Lee Mullane, Editor

CLEAN WATER FOR ALL:
Goal for the 80's

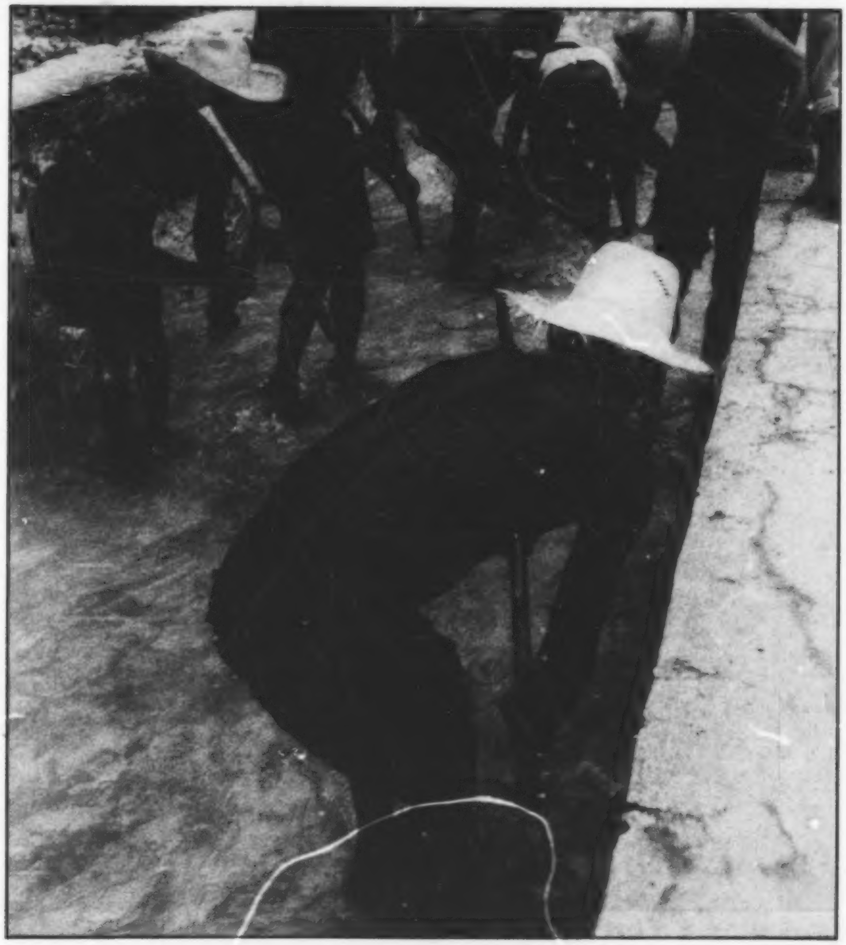
Over the next 10 years international attention will fix on giving everyone safe water to drink and workable sanitation systems.



Water. Wars have been fought for it. Cities have disappeared for lack of it. Today in the developing world it is perhaps the most precious resource. Community waterholes are drying up as more and more people arrive to draw from them. Women walk for hours every day to find water for their families—and the water they carry home more often than not is contaminated.

Increasingly, governments are recognizing the need to do something about water—not only to provide it, but also to ensure that it is clean and reliable. On Nov. 10, marking the start of a worldwide effort to focus on the need for water, U.N. Secretary General Kurt Waldheim, at a special session of the General Assembly, will kick off the International Drinking Water Supply and Sanitation Decade. Striving for safe water for all by 1990, the Decade "offers the possibility for achieving as great a change in the quality of human life as any program ever launched by the United Nations," according to U.N. coordinator Dr. Peter G. Bourne.

Following are some questions and answers about the "Decade for Water."



Q Why is such an effort needed?

A Here are some figures that give only a small part of the total picture of death, suffering and loss of human potential that come when clean water is not to be found:

- Eighty percent of all diseases are water-related.
- In 1979, more than six million children under 5 died in the Third World from water-borne diseases.
- 400 million people have gastroenteritis, 200 million have schistosomiasis, and 50 million have river blindness.
- People with water-borne diseases occupy half of all the hospital beds in the world.
- The World Health Organization estimates that 25,000 people a day die from water-borne diseases.

The problem goes beyond the need for drinking water. For example, in New Delhi, India, the water became so polluted by sewerage and industrial effluent that the government said it was unfit even for gardens.

Q How did the "Decade for Water" come about?

A While disasters quickly capture headlines, not so the long-term dangers that unsafe water represents. While good sanitation and clean water would break the life cycle of water-borne diseases, those measures have been too costly and the economic return too small for Third World nations to tackle on their own, according to Letitia Obeng, a microbiologist with the U.N. Environment Program. Therefore, finding a workable solution came to depend on cooperation between developing and developed countries.

In May 1967, the United States hosted an international conference on "Water for Peace," where 90 nations agreed to step up efforts in developing water resources. The State Department created a Water for Peace office to coordinate U.S. efforts. After several regional meetings, a U.N. Water Conference was held in March 1977, at Mar del Plata, Argentina. There, 116 nations agreed to "increase attention to" community water supply and sanitation and called for the launching of a "Water Decade" in the 1980's.

Q What are the goals of the Decade?

A Simply, to provide clean drinking water and sanitation for all by 1990. This means that water and waste disposal systems should be convenient and reliable everywhere, that there should be enough water for drinking, cooking and preparing food, bathing, washing clothes, and where possible, for watering small gardens or small numbers of livestock or poultry. If these goals are achieved, experts say, infant deaths will be cut in half; the role of women in rural areas will be radically improved, as will the economic status of the world's billion people living in absolute poverty.

Q Why hasn't anything been done before?

A Almost every country has at some time made an effort to provide safe and adequate water. From 1971 to 1975, countries invested over $15 billion in water supply and sanitation facilities. Roughly three-quarters of those investments came from internal resources. Yet, less than 10% of the world's people could find as much clean water as they needed.

Q What has the United States done to help?

A Focusing on water problems in the Third World is nothing new for this country. According to John W. McDonald Jr., U.S coordinator for the Decade, "The United States has been deeply involved in helping build water supply facilities in the developing world since the 1940s, and good progress has been made in some areas. For example, studies in Latin America show that from 1960 to 1976, the proportion of the population able to easily obtain sufficient clean water went up from 33% to 61%. This is significant since the number of people also rose, from 68 to 200 million in the same period."

The Agency for International Development has had projects related to water throughout Asia, Latin America, Near East and Africa. In the 1960s, AID funded $3 billion worth of resource development projects. In the 1970s AID helped build a desalination plant in Israel for drinking water, a sewerage treatment plant in Korea, and wells and water lines in Yemen. Other countries received similar assistance or training in building needed facilities, among them the Philippines, Indonesia, Brazil, Guyana, Bolivia, Colombia, Guatemala, Honduras, Nicaragua, Panama, Peru, Kenya, Somalia, Tunisia and Liberia. This year alone, AID supported 70 water-related projects in 33 countries. According to McDonald, the figure will rise to 136 projects in 73 countries next

Much of Tunisia is arid, but water is available from wells built with U.S. assistance.

A new tap in this Thai village means clean water for family use, and a lot of fun for children.

year with funding listed at $200 million (including Economic Support Funds).

Q How much will it cost to achieve the goals of the Decade?

A The United Nations estimates about $92 billion by 1990 to meet the clean water goals, and another $40 billion to meet sanitation goals. Initial investments for water systems range from approximately $20 per person for rural systems to over $300 per person in cities. The cost of human waste disposal varies greatly. Simple hand-dug latrines can cost as little as $14 to $130 to build; more complex systems are more costly and more difficult to maintain.

Q Where will the money come from?

A The long-term financing will involve developing and donor countries as well as international agencies. A separate consulting group of donor countries has been formed to discuss funding. American officials encourage as much local participation as possible. AID's experience, and that of other donors, has shown that a continuing strong commitment on the part of the local community to contribute to the operation and maintenance of water and sanitation systems is essential to success. Local sources in the Third World countries may be required to supply some 70% of the funding, with 30% from external sources.

Q How is the Decade going to be run?

A On the U.N. side, a steering committee of seven agencies has been formed to coordinate the U.N. input. The Committee includes the United Nations Development Program, World Bank, World Health Organization, Food and Agriculture Organization, International Labor Office, UNICEF, and the United Nations itself. The group is chaired by the UNDP, with Bourne as coordinator. UNDP resident representatives in each developing country will act as the U.N. in-country coordinators.

Q How will the problems be approached?

A The international organizations have been planning the Decade since the 1977 conference in Argentina. National governments have prepared over 100 country assessments, 37 of them in considerable detail. These assessments describe the current situation and project future needs. From the data, individual donors and national, regional and global financial institutions will develop creative projects.

Q What role do women play in water supply and sanitation? How will they be included in programs planned for the Decade?

A Women spend as much as a third of their work day locating and transporting water for drinking, food preparation, family washing and for agriculture. They also bear the brunt of the consequences of inadequate or contaminated water: caring for a child who becomes ill or dies, for example.

The recent Copenhagen conference on women adopted a resolution encouraging U.N. member states and international agencies to include the role of women in pursuing the "Decade for Water's" goals.

In the coming years, AID will try to involve women in promotion, hygiene education and the design, management, operation, maintenance and construction of the water systems.

Q Specifically, what will the United States do in the next 10 years?

A Safe water and sanitation fall within Congress' basic human needs mandate for the U.S. development assistance program. According to an official U.S. statement on the Decade, prepared by an interagency task force and submitted to the United Nations in January, 1980: "The International Development Cooperation Agency (IDCA) will develop policy and coordinate bilateral assistance programs. The Agency for International Development will be the primary operating agent for bilateral assistance. The Peace Corps also will make a major contribution to the effort."

AID and the Peace Corps have agreed to work together, combining AID's technical resources, expertise and funds, and the Peace Corps' rural community-based practical experience.

U.S. bilateral programs will focus on rural and semi-urban water supply and sanitation where the need is greatest. The U.S. strategy is to try to improve the availability and quality of water in conjunction with primary health care and efforts to increase food supplies.

Meeting that goal will mean more than supplying funds, materials, and technicians. Training village workers to monitor and maintain the facilities will be equally important. The systems therefore must be tailored to the community and the ability of the people in the community—appropriate technology.

According to AID's health office, AID is a leader in recognizing the need for training, hygiene education, promoting community participation, integrating water sanitation with nutrition and health activities and in developing national and regional water and sanitation policies. AID also has stressed ensuring the long-term success of programs through training and appropriate technology.

One of AID's projects underway is the Water and Sanitation for Health (WASH) Project. It is to provide a mechanism for AID missions and host governments to draw upon the expertise of the U.S. private sector in technology transfer, technical assistance competency training and information dissemination.

In most developing societies, women must spend hours searching for water. New systems are changing that.

Q **Are other U.S. agencies taking part in the Decade?**

A The Agriculture Department is involved with AID primarily in initiatives to improve drinking water, and in some cases in designing livestock waste disposal, assessing soil conditions as they relate to waste disposal, and general sanitation planning.

The National Science Foundation supports basic and applied research projects in collaboration with a number of less developed countries through formal bilateral science and technology agreements or informal cooperative arrangements. These have included a small number of water quality and sanitation projects.

Also, the Environmental Protection Agency has helped develop and operate the U.N.'s Global Environment Monitoring System for both air and water quality. Through the World Health Organization and the Pan American Health Organization, EPA makes experts available either to participate in international meetings or to provide technical assistance through short-term consultation and training assignments in developing countries.

Q **What about the private sector?**

A American academic institutions, corporations, private agencies and consulting organizations are contributing to the American initiative. At least one American city has "twinned" with another in a developing country and is helping with its water problems.

The American Water Works Association, a 30,000-member scientific organization, designated its 1980 annual conference theme as "Water for a Thirsty World." The American Public Works Association is designing cooperative activities through its Council for International Collaboration. The American Society of Civil Engineering is planning to include Decade support in two national meetings. Other associations, including the Inter-American Association of Sanitary Engineers, the American Water Resources Association, the American Public Health Association, the Water Pollution Control Federation, and the National Well Association, are becoming involved.

Q **Can the Decade's goals be achieved?**

A Says Dr. Bourne:

"In 1967 a number of experts in the United States and at WHO began to discuss the possibility of eradicating smallpox. Many cynics laughed at the implausibility of the idea and said it was hopeless to consider that one could ever totally eradicate a disease that was as widespread in the world. Now 13 years later, there has not been one case of smallpox anywhere for the past two years.

"One hundred and fifty years ago cholera was rampant in Europe and in many parts of America. What revolutionized the health of people in this part of the world was the development of clean water and sanitation systems. Within our lifetime we can achieve the same advances for the entire world.

"But it will only happen if we have the will to make it so."

PEACE CORPS WATER WORKERS

by Bill Barrett

Volunteers in villages throughout the Third World may be development's best hope for introducing new ways to use water.

Over the past 20 years, Peace Corps volunteers have pioneered community involvement in clean water efforts in much of the Third World. In the coming 10 years—the decade dedicated to safe water and sanitation—they will double their efforts.

Patricia Munday is one of 15 Peace Corps volunteers assigned to Liberia's Ministry of Local Government to train co-workers in spring box construction and hand-dug and drilled well construction. "After two years in a developing country," says Munday, "I'm convinced that potable water is the key to improved public health."

Since its start in 1961, the Peace Corps has been addressing the need for pure water and sanitary disposal systems. Working at the grassroots level, volunteers have carried out wells projects in Tunisia and West Africa, and sanitation education is part of Peace Corps health programs in 80 nations. By 1979, the Peace Corps was concentrating heavily on the need for community-supported water projects and broader efforts in sanitation education. From 1970 to 1979, more than 1,300 volunteers worked in water supply projects as engineers, hydrologists, construction foremen-and-women, and mechanics; twice that number of volunteers served as rural sanitation and public health extension workers, health educators and trainees in sanitation projects.

John Church's water project in Belize offers a typical example. Working in an area where waterborne diseases were a major cause of death, Church helped three communities develop potable water supply systems. In one village, residents working with Church laid three-and-a-half miles of pipe with connections to 89 houses, dug a 65-foot well and built a 32-foot water reservoir.

In Kenya, volunteers are helping construct communal water points to serve about 100,000 rural inhabitants. The project depends almost exclusively on self-help; the communities provide labor and part of the cost.

Volunteers in Upper Volta assist villagers in building and learning to maintain hand-dug wells. This means training local residents in masonry and well-digging.

In Nepal, volunteers are indentifying sites, designing and helping install hydraulic rams where needed.

In Malaysia and Thailand, the Peace Corps is helping develop water resources, dams, spillways, reservoirs, culverts and irrigation canals. The result is higher farm production and a sufficient domestic water supply.

Building concrete water cisterns in Tonga is another Peace Corps endeavor. The cisterns mean that about 30 villages now have water. Volunteers travel from village to village to select and survey sites, modernize cistern designs, and recruit and organize village labor.

Watershed management is of crucial importance in Honduras, where volunteers help establish long-range support for the volunteers' efforts. In response to the idea for a "water decade" the Peace Corps has established a water sanitation sector specialist position within its office of Programming and Training Coordination. The man in the job is Craig Hafner, who served from 1975 to 1978 as associate Peace Corps director for rural development and health in Sierra Leone.

"I've been called 'Mr. Village-based-training' since returning from Sierra Leone," notes Hafner, who assists field staff with Peace Corps water projects involving nearly 250 volunteers in 23 host countries. "In Sierra Leone, we trained volunteers by housing them with families in remote villages," he says. "They helped villagers repair and improve the houses in which they were guests. Most often, village chiefs would serve as assistant site administrators and help oversee the construction of various kinds of latrines. It was one of the few programs," recalls Hafner, "where local leaders worked as training staff and where training dollars actually went towards materials to repair village homes rather than to support training facilities." He points out that such training programs were not held in the same villages repeatedly, but were moved about to avoid the growth of any kind of dependency or stagnation.

Hafner doesn't think that water project trainers need "get hung up spending large amounts on training facilities, but rather should depend on people and ideas" in planning appropriate training. "We're striving," he maintains, "to improve the quality of pre-service and in-service training by more effectively integrating health education and community participation in training project designs."

"Responding to the Water Decade," Hafner goes on, "we try to fill the need for grassroots-level workers. Although the agency is gearing up for special efforts to recruit "scarce skills" people in such fields as health, agriculture, math and science, we recognize that we won't get many engineers, so our basic recruiting strategy is to develop a skill-training model to give generalists basic building and design skills as well as training in health education and community organization.

". . . community participation is essential if water projects are to have an enduring usefulness. . ."

"Effective community participation," he continues, "is essential if water projects are to have an enduring usefulness." He points to a case study on rural water supply and sanitation education presented in 1978 to the UNICEF/World Health Organization Joint Committee on Health Policy by Margarita Cardenas, then associate Peace Corps director for health services in Paraguay. Cardenas is currently a health program officer with UNICEF in Pakistan.

Cardenas' report notes that successful Paraguayan projects are those which "work *with* and not *for* the community." She concludes that there is affirmative community response when volunteers work in consideration of deeply felt needs and involve community leaders "from the very start of the program."

Cardenas maintains that "more time should be devoted to sanitation education in the schools," and she notes that most health workers in Paraguay spend the bulk of their time doing curative work in the clinic.

According to Hafner, a further priority of the Peace Corps water/sanitation programming and training sectors is to encourage intra- and inter-regional networks, and more collaborative efforts with other development assistance agencies. "During the Water Decade," he says, "we hope to tie into AID project designs and work closely with the private voluntary agencies, all of which have long experience in the field of water and sanitation. Already," he continues, "we've held collaborative meetings with AID's Development Support Bureau, and we hope to develop an agreement similar to those now existing between AID and Peace Corps in the forestry and energy sectors."

Demonstrating cooperation between the two agencies, 28 volunteers have responded to an AID request that they monitor local reaction to and use of robovalves installed in 14 countries as part of an AID project. A robovalve is a water-conserving spigot.

Also four volunteers were recently assigned to a latrine construction/health education project in Oman designed by the World Health Organization in response to the U.N. Water Decade.

"It is the sort of teamwork we'll need," observes Hafner, "if the goals of the Water Decade are to be achieved." □

Bill Barrett is a staff writer in ACTION's Office of Public Affairs.

FRESH WATER from the Sea?

A simple invention may take the high cost out of desalination

by John G. Blair

Tapping the oceans for fresh water has been an option for some time, but too expensive for serious considerations by any but the wealthiest nations. Now, however, a simple invention offers the possibility of cutting the cost and exercising the option.

The Delbuoy, a desalination buoy-pump developed at the University of Delaware, uses the force of waves to pressure sea water through a special membrane. That membrane filters salt from water. The process is "reverse osmosis." It produces water free of impurities, even chemical pollutants.

The energy needed for the process comes from the sea itself. The roll of the waves moves the buoy, activating the submerged pump, forcing the sea water into the reverse osmosis filter at a pressure of about 800 pounds per square inch. Approximately 1,500 gallons of fresh water a day could be produced by each machine.

Scientists from the Universities of Delaware and Puerto Rico will test a 15-foot diameter prototype of the Delbuoy this fall off the Puerto Rican port of Mayaguez. If all goes well, the oceanographers will have a desalination device specifically designed for wave and weather conditions in the trade wind zone from approximately 30 degrees north latitude to 30 degrees south. The new technology could help provide needed drinking water to the Caribbean islands, the Horn of Africa and the United States.

A dependable supply of fresh, uncontaminated water could have a significant economic and social effect on many dry coastal communities. Some of the more affluent societies already pay as much as $50 per 1,000 gallons of water shipped to them during emergencies. The Delbuoy system could bring this figure down to between $2 and $3.

Since the energy that powers the system is "free;" the real cost of the desalination process consists only of construction and maintenance. For that reason the investors designed the Delbuoy unit for long life and reliability. The buoy can be made from local material—bamboo, for example. Non-corrodible polymer from DuPont was used in the high-pressure pump and the reverse osmosis membrane is replaceable.

Assembly technology has been kept simple. High pressure seal work can be done on-site. The project directors suggest that one person assigned to a standard trading vessel could deploy the projected 15-foot diameter Delbuoy, as well as instruct local residents in proper maintenance.

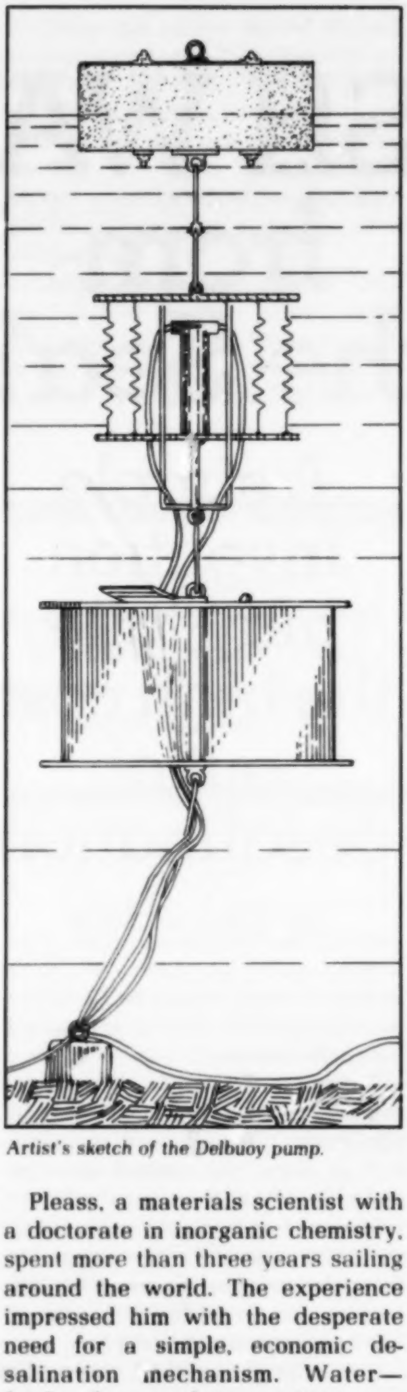
To protect the investment in times of coastal storms, the scientists have built a weak link into their device, just below the buoy. The device will break in times of stress. This permits the more expensive pumping parts of the unit to drop to the bottom of the sea, where they are safe from the storm and can be recovered afterward.

While a single Delbuoy could not fundamentally change an area's suitability for man, a cluster of these easy-to-maintain pumps could make a zone more hospitable. The Delaware scientists suggest that by using the system, arid areas could grow high-yield cash crops. The machine, say the scientists, also could be adapted to provide coastal fisher-

men with cold storage—enough to refrigerate three tons of fish.

Successful sea trials for the Delbuoy also might spur other scientists, currently involved in attempts to produce electricity with gigantic wave-powered machines, to adapt their devices for producing fresh water. According to Charles M. Pleass, originator of the Delbuoy concept, a hinged raft apparatus being built in the United Kingdom by Sir Christopher Cockerell (inventor of the Hovercraft) is especially suited for coupling with a salt separating membrane system. Pleass says too many people working to develop wave-powered machinery are "blinded by the lure of electricity." Calling the economics of producing electricity with such equipment "marginal," he asserts that the best use of such technology lies in combining it with advances made in reverse osmosis filter construction. He predicts that devices built to blend these fields "will have a large part to play in the future of ocean science and coastal zone technology."

The University of Delaware instructor in marine studies foresees the day when clusters of Delbuoys could produce a million gallons of fresh water a day. One-tenth of the supply could be used for the drinking needs of a community of roughly 3,600 people. The remainder could be used in the trickle-irrigation of 330 acres of crops that would feed the community, as well as provide a limited export income. Waste from the settlement could be recycled as fertilizer and a certain percentage of the acreage could be devoted to soil enriching legumes.


Artist's sketch of the Delbuoy pump.

Pleass, a materials scientist with a doctorate in inorganic chemistry, spent more than three years sailing around the world. The experience impressed him with the desperate need for a simple, economic desalination mechanism. Water—fresh, clean and in constant supply—was the prime commodity he saw as needed to sustain the coastal populations of the almost 60 less developed nations and islands he visited.

When he returned to the University of Delaware, Pleass began his investigation into ways to improve water supplies. He ruled out current industrial desalination techniques, most of which are fueled by petroleum, too costly for most states.

He ascertained that solar and biomass energy sources, while renewable, were not yet widely feasible for desalination. Although some solar systems, notably in the Canary Islands, were in operation, he found them inefficient.

Pleass set out to build a machine that would prove "the sea carries in itself the energy to remove the salt." Working with Douglas C. Hicks, an ocean engineering student at the institution's College of Marine Studies, Pleass used a wave-simulation machine built to scale and computers to refine and design the system. Later in 1978 and 1979 Hicks supervised ocean trials with larger models.

The tests off the Puerto Rican coast are expected to last about four months. Hicks, who is working on the construction and monitoring of the prototype, will work under the guidance of Hernandez-Avila, chairman of the Department of Marine Science of the University of Puerto Rico. The Caribbean institution is contributing researchers as well as research vessels and workshop facilities to the final Delbuoy trials.

Hicks says of the Delbuoy, "I can see the end benefit of my research. This capability will help island inhabitants do more than they ever could before." ☐

John G. Blair is editor of "International Exchange News," a publication of the Washington International Center, Meridian House International.

WATER OF LIFE AND DEATH

by John Metelsky

WARNING: DON'T GO IN THE WATER!

If signs shouted that warning at every watering hole, river, pond, stream, swamp, rice paddy and irrigation ditch throughout the developing world ... If people stopped using water as they have for generations and heeded the signs . . . Then, perhaps, millions of people would be spared the effects of schistosomiasis. For centuries the disease has tortured its victims, sentencing many to a slow, painful death. Commonly called snail fever, schistosomiasis afflicts about 300 million people in 71 tropical nations in Africa, Asia, the Middle East, South America and the Caribbean. Drugs are being used against the disease, but people continue to fall ill as they continue to go into infected water.

Snail fever is caused by tiny parasitic blood flukes that live briefly in certain fresh water snails, from which the disease gets it name. The microscopic parasites begin in the snail as larvae. The larvae develop into sporocysts; the sporocysts produce fork-tailed larvae. These bore through the snail's body, swim about freely, and seek their prime target—people.

The ugly cycle of the disease begins when, as tiny worms, the parasites penetrate the skin of people who wash, paddle or bathe in water harboring the snails. Once inside the human body, the parasites, now schistosome worms, lodge in the veins of the intestines, bladder, kidneys and liver, where they may stay, laying thousands of eggs, for up to 20 years. Many of these eggs pass out of the body with waste, back into the water. The larvae hatch in water, seek out and enter water snails, and the cycle continues.

Water-borne diseases, such as schistosomiasis, are one of the main causes of death and debilitation in developing countries.

While drugs have cured schistosomiasis, the treatment is often worse than the disease. Some drugs kill the schistosome worms—but with harmful side effects, cancer for one. For years, scientists have searched for a safe, effective treatment.

Now, after five years of research funded primarily by the Agency for International Development, a Johns Hopkins University scientist has developed a new drug that offers the hope of a cure for snail fever without the side effects. Last August, Dr. Ernest Bueding, an expert on parasitic diseases and pharmacology at the Johns Hopkins School for Hygiene and Public Health, announced he had developed a form of the drug amoscanate. It has proved effective against three major types of schistosome worms in laboratory mice, hamsters and monkeys.

Dr. Bueding says his formulation is ready for clinical tests on people and plans to ask the Food and Drug Administration for permission to conduct trials on volunteers. He has told AID officials: "We want to be absolutely sure that amoscanate is safe. That is why we must conduct tests on human beings—it's FDA regulations."

If and when approved by FDA, amoscanate could help save the lives of millions of people and put millions more back to work in the Third World.

The Chinese government has applied the new formulation on about 30,000 people quite successfully, according to Dr. Alfred Buck, tropical disease adviser in AID's Office of Health. Two to three million Chinese reportedly suffer from schistosomiasis.

Bueding's research was financed primarily with a $650,000 AID grant, with supplemental funding from the National Institutes of Health. (The grant expired in September.)

"This is the way American science and a few American dollars can change the lives and productivity of hundreds of millions of people in developing countries," says AID Administrator Douglas J. Bennet Jr.

Buck reports "a single oral dose of amoscanate appears to be effective against the three major kinds of schistosomiasis." They are *Schistosoma mansoni, Schistosoma haematobium* and *Schistosoma japonicum.*

Schistosoma mansoni is found in Africa, the Middle East, Madagascar, Mauritius and India. *Schistosoma haematobium* occurs in Africa, the Middle East, some Caribbean islands, Brazil, Venezuela and Surinam. *Schistosoma japonicum* appears in the Far East, China, Japan, the Philippines, and Celebes.

Infected slaves brought schistosomiasis to America, but the disease did not spread because the species of host snails were not indigenous to the New World. Without the snail host, the schistosomiasis blood fluke die out. However, *Schistosoma mansoni* took hold in Brazil, Surinam, Venezuela and some parts of the Caribbean.

Victims of the various forms of schistosomiasis feel mild pain in the bladder, kidneys and abdomen, and suffer from headaches, dizziness and diarrhea. Their kidneys can become impaired and cancer can occur. The disease can stunt the growth of affected children. One of the most obvious signs of the intestinal variety of the disease is a swollen belly caused by fluid buildup. Cirrhosis of the liver is not uncommon. Sometimes the disease causes permanent brain and spinal cord damage.

The Schistosome worm lives much of its life in snails found in water throughout the developing world.

Another symptom is bloody urine. Napoleon called Egypt, plagued by the disease for hundreds of years, "the land of menstruating men." In some African areas bloody urine in boys is considered a sign of puberty.

"People who drink water containing the forked-tailed larvae probably won't contract schistosomiasis," says Buck. "The stomach acid most likely would kill the parasites."

Buck says the new drug will be relatively inexpensive to produce in large quantities. "To effectively control schistosomiasis," he adds, "we need drugs to kill the parasites in man, chemicals to kill the snails in water, and a public education program to make people aware of the danger of infected water. In addition, we must provide safe water and better and safer latrines or other means of disposing of human wastes. Under

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The life cycle of the disease could be broken if people stopped contaminating water they use.

ideal conditions, we would apply all of these controls at the same time.

"While amoscanate kills schistosome worms in people, nothing will keep people from being re-infected if they continue to come in contact with contaminated water."

For example, when Egypt completed the Aswan Dam in 1969, it brought farmers a year-round water supply. The dam also brought snail fever to a few million Egyptians. Two different species of schistosome worms have infected as much as half of the population. The cost of the disease to the economy in medical care and lost labor runs into hundreds of millions of dollars every year.

Similarly, in Ghana, Lake Volta, the world's largest man-made lake, is a breeding ground for snails that carry the schistosome parasites. When the lake began to fill up in 1966, the snails were restricted to a few isolated areas in creeks. Once the creeks were submerged by the rising lake, snails established new habitats along thousands of acres of lake shores.

However, according to the World Health Organization, the Caribbean island of St. Lucia has reduced schistosomiasis to low levels by providing piped water, drug therapy and snail control.

Dr. Buck says AID is planning a four-year, $8.6 million schistosomiasis control program for Africa, including projects in Sudan and Cameroon. Those countries suffer from all three major forms of schistosomiasis, which seriously hampers agricultural and rural development.

"The projects," he said, "will link new methods of schistosomiasis control with better and expanded rural health service in demonstration areas." About four million farmers and fishermen in the two countries who are regularly exposed to schistosomiasis could benefit from the projects. The World Health Organization and the World Bank also will contribute to the projects.

AID's policy, Buck says, "is to join other donors in activities such as the Tropical Disease Research Program, which is supported by the World Health Organization, the U.N. Development Program, and the World Bank. The program involves research to find better and less expensive methods to control schistosomiasis.

AID also provides technical assistance to countries to design control programs. AID will support some programs concerned with modifying the environment (including engineering) to make the snail's habitats less conducive to propagation," Dr. Buck added. AID will train people from developing countries to prevent and control schistosomiasis. Buck says that AID now carefully reviews rural development projects, particularly irrigation and other water-related projects, to ensure against their contributing to the transmission of schistosomiasis. ☐

John Metelsky is a public information officer in AID's Office of Public Affairs.

PHOTO MODERNE KOKO,

by Benedict Tisa

Albert O. Egeson, Photographer

Tiny photographic businesses of West Africa provide employment and training.

PHOTO MODERNE KOK

Amid the music and moving lights of the studio, Ivorians pose, stiff and dignified, for their portraits. The photos often are inscribed with "Life is Beautiful" or "God Loves His Children."

Anyone who has traveled in West Africa knows of the little photography studios that dot the 'quartiers' of nearly every town. Their display windows are full of photos—ID's and mementos of good times: weddings, graduations, dances. Just as in the United States, photographers are in demand, and the studios perform an important service. They constitute small-scale cottage industries, employing from one to several people each.

At a time when audio-visuals are considered integral to extension and outreach programs in developing countries, these small businesses offer a precious—and scarce—resource, trained technicians. For example, a "graduate" of a small photo studio is managing the materials production unit of a livestock extension program in Mali. In the Ivory Coast, local photographers were called in to help a Peace Corps volunteer in a production for the National Educational Television Complex.

The Photo Moderne in the Koko quarter of Bouake, Ivory Coast, is a typical small studio. Its blue and white awning and blue-painted showcases are sandwiched between tailor shops.

Most evenings, Albert O. Egeson leans in the doorway of Photo Moderne, his place of business and his home. The fluorescent lamps of his showcases create a pool of green light which appears to rock to the rhythms of the latest Zaire pop hit blaring from the record player inside. People strolling by Albert's studio always stop to look at the photos on display. Albert invites them inside to see his studio and its backdrop. It is a masterpiece: a black-and-white photo of the Houphouet Biogny Bridge in Abidjan, with white sausage-clouds floating over it—Albert shoots only

The photographer's apprentice. He will soon pack up his equipment and set off on a tour of remote villages.

black-and-white.

Amid the music and green moving lights one sees few smiling portraits of Ivorians. Most people want only their most enduring and dignified selves recorded on film. Their photographs are usually inscribed with "Life is Beautiful," "To My Sweetheart," or "God Loves His Children."

The finished portrait takes a day or two. The darkroom techniques of a small local photographer are not sophisticated: If the print is too large for the trays it's just folded over. . . . A few wrinkles will come out in the washing and drying. For a glossy surface, the photo goes on a ferroplate or piece of glass, and then is leaned against a sun-struck wall out-of-doors. No differentiation is made in paper grades or surfaces. Negatives are routinely retouched to lighten the faces. Rolls of film are developed in Melmac bowls in the darkroom, the film passed rapidly in and out of the liquid by hand. Washing is accomplished by agitating pots of water on the front step of the studio; negatives are dried in the arch of the open doorway—not the latest in Kodak processing. But, all things considered, these techniques are well adapted to working conditions and equipment and supplies. And, surprisingly, the quality of the finished photo is on a par with an average U.S. drugstore print.

Becoming a photographer in West Africa means making a big investment . . . and often making do. The price of a Yashica TLR (twin lens reflex) camera is usually about double what it would be in the United States. The standard 35 mm cameras that are so popular in this country are rarely used in Africa because the negatives are too small to retouch. Away from the capital cities, most equipment is very hard to come by. Enlargers, dryers, trays, thermometers, tongs—all are scarce and expensive. Traveling salesmen sell used equipment in varying states of repair from studio to studio in the larger towns.

Usually one studio will have five or six photographers working in a cramped space. Albert also has two apprentices. No pay is involved; they're there to learn and to build up a clientele. They do some of their own work on the side, using Albert's enlarger. But while they are at Photo Moderne, they also keep the place clean, dry photos, and wash Albert's clothes.

Three or four other photographers use the studio as a home base. They are young, just starting out. When they have saved enough money they will buy their own equipment and set up their own studios. While Albert and his apprentices take care of the town trade, one of the novices goes from village to village, carrying little more than camera, tripod and white backdrop sheet. After about a week on the road, he returns to the studio, develops and prints his rolls of film. Then he sets out on a return circuit with the goods. Wherever he goes people crowd around him to see the photos.

Photography is flourishing in West Africa and can only improve. Meanwhile, the many little studios may be training future journalists, artists, and media-oriented educators. ☐

Benedict Tisa is a communications consultant in Collingswood, N.J.

The Urban Poor: Making It On Their Own

by Lee Mullane

Jobs . . . making a living . . . feeding a family. They're universal concerns. But in the cities of the developing world those concerns take on a special urgency.

Throughout the Third World, deforestation, improper land use, drought, famine and over population are forcing people off land they once tilled. People are flooding into already overcrowded cities and, there, "making a living" becomes a matter of sheer survival. There are not enough jobs to go around; there are too few industries. The poor must fend for themselves.

Fending for themselves is what millions of people are doing in cities from Quito to Madras to Nairobi. They are part of the so-called informal sector. They run tiny businesses ranging from street vending to tailor shops. They represent a growing and largely untapped resource for bolstering fledgling economies, for providing new jobs and for bringing about social change. According to a study recently completed for AID's Office of Urban Development by ACCION International/AITEC, a private voluntary organization (PVO): "It is estimated that the Third World will need 782 million new jobs between 1980 and 2000. Since more people are crowding into cities, an increasing proportion of these new jobs will need to be created in urban areas. Currently from 20% to 50% of those working in the cities are employed in the informal sector and the number is growing."

In Nigeria alone, the report says, while the urban labor force is growing 6% a year, less than a quarter of those looking will find jobs in big business. Most will start their own tiny informal businesses. Statistics show this happening in virtually every Third World country.

The report, "Program for Investment in the Small Capital Enterprise Sector (PISCES) Phase I," suggests that one way to help solve growing urban problems is to focus assistance efforts on the smallest of businesses within the informal sector, where capital required for start-up is minimal (anywhere from a few dollars to one or two hundred dollars). The income from these activities can be increased if entrepreneurs get help in overcoming the many obstacles now blocking their way.

Bolivian women with their children wait for a milk cooperative to open.

For example, small business operators often are unable to afford the necessary business licenses and fees, let alone the rent charged for "good" locations. They frequently encounter zoning regulations, building standards, and anti-vending laws that prevent them from operating legally in central business districts.

Perhaps the greatest impediment is credit, according to the PISCES report. Many of the problems are linked to insufficient amounts of working capital. With rare exception, banks provide credit only to the larger businesses in this group. The only credit normally available to the smallest, informal sector enterprises is through usurers. Without access to credit at reasonable interest rates, the smallest-scale entrepreneurs cannot buy the essential tools, stock, or raw materials needed for their businesses to grow.

Levels of Small Business Operations

In studying some of the innovative projects directly assisting the lowest levels of businesses in 16 countries, the PISCES researchers observed that even amid the great variety of activities that exist, there are general characteristics shared by businesses of similar size. The researchers identified groups and subgroups of businesses according to size and determined that assistance programs, when appropriately matched to the actual needs of the beneficiaries at each level, rve to nudge along the process of siness development.

At the first and lowest level people do whatever they must to subsist. They tend not to think of themselves as entrepreneurs; there is little systematic operation or planning involved in their work. Their activities may consist of hawking clothing or selling chewing gum and candy on street corners. The *Marías* in Mexico, women who migrate between the countryside and cities with their families, are an example of these marginal "business owners." Generally living with relatives from the same village in tightly knit neighborhoods within the city, they continue much as they would in the countryside: sleeping on straw mats, cooking over charcoal burners on a patio shared with other families, and honoring the patron saints of their villages.

The *Marías* usually have no personal business experience. Even though they have such potentially marketable skills as sewing and weaving, they are unfamiliar with the planning and organization that go along with a profit-making venture. Also, their extremely limited capital is precariously balanced against many pressing family needs.

The second level consists for the most part of long-time city residents who are self-employed. They tend to operate service, trading and manufacturing enterprises which, though small, are generally viable. Typically they reinvest whatever resources are available—capital, raw materials, skills, time, ingenuity. For example, a woman in a large Latin American city began a tortilla business by first making a few extra tortillas for a neighbor who spent her days at the market and who did not have enough time to make tortillas for her family. Before long the first woman discovered that many others in the barrio were willing to pay for fresh tortillas. She employed a daughter who was old enough to make tortillas correctly, and had another daughter wash the clothes and tend the baby. The woman then devoted more time to the business, and in time it prospered.

Fending for themselves in overcrowded cities, men and women are starting tiny businesses and they're working.

A shoemaker sets up his open air shop along a city street.

At the third level, in the Philippines, a woman owns a small chicken shop. Once her business was established she began to fill the entrance of her shop with plants, which she grew at home in her garden as a hobby. These she sold. When the Saturday market was particularly busy, the chicken seller directed one of her daughters to prepare hot snacks on a little stand in front of the shop. The sight and smell of hot, freshly prepared food drew customers on its own, but in addition, these people were then enticed into buying chickens. The business has continued to expand.

The types and scales of business activities encountered show varying degrees of flexibility and business savvy. A major focus of the PISCES study is on how the characteristics of the businesses and of the businessmen and businesswomen themselves suggest the different forms that assistance efforts should take if they are to be effective.

Types of Assistance Programs

PISCES researchers uncovered many effective efforts to help small entrepreneurs, but found basically three kinds of projects, each corresponding to a different level of business activity. First, people like the *Marías*, whose businesses are the least established, receive some help generally through community-based programs providing such basic services as health, education, literacy, sanitation and food, in addition to business assistance. Second, for the very small but established enterprises, like that of the tortilla maker, the formation of informal groups made up of business owners within the community is encouraged. These groups generally guarantee loans, although in one program group leaders have gone an extra step and are administering a fund to help start businesses for the very poorest in the community.

Advocacy is another important function of informal community groups that benefits these small established enterprises. For instance in one community mentioned in the study, leaders of the various credit groups, acting as the board of directors of the organization, pressure the local government to improve conditions in the markets and to end police harassment of hawkers and vendors.

Not surprisingly, businesses as well established as that of the chicken vendor need little or no assistance beyond what is available directly from bankers, credit unions or other formal lending institutions. The vast majority of entrepreneurs in this group are women. Typically they run small production shops, corner stores, fruit stands and similar operations. They earn on the average between $1 and $2 a day.

How do programs serve different levels of business operations?

For the lowest level:

Located in one of the poorest communities in Bangalore, India, the Bangalore Layout moved into helping businesses get started after five years of successful integrated community development work. It now deals with 120 families who have a strong interest in "improving themselves." With assistance from a local bank, the project has helped start 75 businesses, with average loans of $61.25. Because these small operations are identical to others already operating in the community, the requirement for costly training has been minimal.

Right: Ecuadorean women wind wool in a cooperative workshop. Below: The hat industry is important to the economy in the Andean region of Latin America. A worker shapes hats he will take to market.

The National Christian Council of Kenya (NCCK) works throughout the country in large and small cities. The majority of its beneficiaries are extremely poor women. Their income is on the order of $15 a month. Most have at least six dependents. The women have very little "business" experience and very low skill levels.

The NCCK program has helped set up cooperatives using such skills as sewing and animal husbandry as starting points. The groups market goods collectively, sometimes through shops run by the NCCK, and arrange for the collective purchase of raw materials. When successful, the co-ops have increased the earnings of their individual members to about a dollar a day.

Also in Kenya, the Village Polytechnic Program is training poor youth at low costs. It surveys the community to determine the skills needed and then involves local artisans as trainers. Early in their training, the youths sell their products together to defray part of the training costs. Part of the sales income is deposited in a fund that will help establish a cooperative enter-

Running a small business offers the only chance for survival for many people living in already overcrowded cities. Yet without help, these tiny business owners may stay trapped in poverty.

prise for the group after training is completed. The fund also goes toward the purchase of tools needed for setting up individual businesses or to help members make the transition to working in a factory or shop.

For the second level:

Prideco in El Salvador is a government-sponsored community development agency. Fedeccredito is a major credit union. Together they run a program that is based on solidarity groups of five to eight members who are collectively responsible for paying back the individual loans of each business owner. Solidarity groups are formed when community members bank together as required by the program to qualify for low-interest loans. Each group selects a leader responsible for handling group payments. Group members pay the leader daily. The money is then collected from the leader weekly by a program employee who is paid a commission of 1% on the total collected.

The Prideco/Fedeccredito program has provided loans to 2,735 businesses in 18 months. Initial loans average $80-$200 with administrative costs of $30 for the first loan and $10 for the second and later loans. Typical of several programs that work at this level, the default rate is about 2%.

For the third level:

In some cases, commercial banks

help owners who have sufficient inventory, a credit history or someone willing to co-sign a loan for them. Although these businesses are far smaller than those traditionally served by banks, they are still at a higher level than the typical beneficiaries of community-based and group programs; they have better developed business skills and contacts in the local economy.

In one of the more unusual commercial bank programs, the Philippines Commercial Industrial Bank (PCIB) provides credit to established stallholders in public and private markets. This it does through its 70 "money shops" scattered throughout the country. To qualify for a minimum loan of $125, the stallholder must have average daily sales of at least $7.50 and profits of at least $25%. Loans are repaid in daily installments. Each money shop operates from a stall in a market where there is a concentration of between 400 and 800 sellers. The money shops will have $3 million to lend in 1980 in amounts ranging from $125 to $1,250. While no figures on administrative costs per loan are available, it is clear that the bank is making a profit on the loans. Seven other financial institutions are now competing for the market.

Scattered evidence indicates that projects to help businesses have both social and economic impact. Generally income increases significantly. The difference in earning $1 a day and $2 a day to meet the needs of an average family of six people is dramatic: children can be sent to school; the sick can see a doctor; housing can be upgraded; and savings can become possible for future investment in the business. And the impact may go beyond the individuals helped; often jobs are created for others. The seamstress hires another woman to help part-time; a candymaker hires her two sons.

Concluding their report, the PISCES researchers emphasized that in the most effective projects one precept appeared to be universally valid: Program inputs must reflect the plans and desires of those they serve and to the degree possible must be geared closely to the level of skills and knowledge that commonly exists in the community. When this is violated, complexity increases, and the number of people who can be served decreases and the cost per beneficiary increases. Project staff members must listen to what people want and stay close to their level of skills and knowledge.

"Programs which follow these principles tend to reach the greatest number of people at the lowest cost. They will probably also be easiest to replicate in other countries," according to the report.

In the second phase of this project the PISCES team will set up new pilot projects and evaluate their impact. Already teams have begun preliminary designs of new projects to assist small enterprises:

In Bangladesh, a "small enterprise foundation" may be set up with AID funding. Since few projects assist the smallest level businesses in Bangladesh, this foundation is expected to identify small and community-based groups interested in enterprise development. The "foundation" will arrange for funding small pilot efforts, will monitor and evaluate those projects, and act as a central clearinghouse and broker between donors and the local organizations.

AID has also funded a study of informal sector enterprises in the Dominican Republic. The study is being carried out jointly by the Dominican Development Foundation and ACCION International/AITEC. Based on the results of this study support will be obtained for the purpose of upgrading the Dominican Development Foundation's capability to provide credit and other assistance.

In Kenya the AID Mission recently awarded a grant to the National Christian Council of Kenya to expand an ongoing effort to reach small business cooperatives. Funding will be provided for expansion and technical backup for community workers.

The PISCES work has pointed to a practical way to solve some of the problems which keep tiny businesses trapped in a cycle of poverty . . . from the bottom up. ☐

A sewing machine not only offers this woman a chance to makes clothes for her family, but to earn an added income as well

Also contributing to this article was Herbert Werlin, editor of "The Urban Edge," a publication of the Council for International Urban Liaison. Lee Mullane is editor of "Agenda."

by Emmett George

BACK-COUNTRY ENTREPRENEURS

There's more than farming going on in the countryside.

Thousands of tiny businesses are part of the economic lifeblood of villages.

In an Indian village, an elderly man sits patiently spinning thread for Khadi cloth. Like millions of spinners, he uses a loom of ancient origin. From the Khadi cloth he will make traditional cotton "chuta" shirts. The villager will try to sell them at a local market in New Delhi for money to buy vegetables, tea, sugar and other household essentials.

Far away in Ghana, a middle-aged woman at Kwamso stirs an akaline concoction of dry cocoa husks, corn cobs and banana peels into a potash soap. She will sell her soap at nearby villages.

Somewhat higher on the economic ladder, a Guatemalan man, his daughter-in-law and an employee toil in a small bakery. The bakery's ovens produce bread, rolls and pastries for sale to local villages. The baker buys his flour from a local miller and fuelwood from local woodcutters.

Thousands of similar, unobtrusive activities are part of the economic life of villages and towns throughout the developing world. Every person who takes goods to a market and operates a small business is a member of the so-called private enterprise sector.

Despite their great numbers, the small entrepreneurs are overlooked, for the most part, by government planners and the foreign assistance establishment. Often they provide the only means of employment for people who can't find other work. Yet they are thought to be recipients rather than contributors to economic development.

While there is no fixed definition for small and medium-sized enterprises, AID priorities define small enterprises as those with up to 20 workers, total assets up to $50,000 and maximum capital costs of $5,000 per worker employed. Medium-sized firms would have a maximum of 150 workers, $500,000 in assets and $15,000 per worker employed.

In recent years, bilateral and multilateral assistance agencies largely have channeled their scarce resources into either traditional agriculture or heavy industrial development. To do otherwise was risky. But now a group of development experts within the Aency for International Development and the universities is offering evidence that small-scale producers can and should assume a greater share of the

responsibility for economic development in their countries.

The best known research in support of small business development has been done by Michigan State University's Department of Agricultural Economics. The university has published detailed studies of small business growth in Sierra Leone, Haiti, Jamaica and other countries. In "Rural Non-Farm Employment: A Review of the State of the Arts," a summary analysis of this research published in 1979, researchers Enyinna Chuta and Carl Liedholm report: "The evidence available from national censuses of various regional and rural surveys indicates that non-farm activities provide an important source of primary employment in rural areas of most developing countries."

The percentage of the rural labor force engaged in job-generating activities was as high as 49% in Taiwan and as low as 14% in Guatemala. "The (official) statistics understate the magnitude of these activities," Chuta and Leidholm write, "because they fail to reflect those farmers who engage in non-farm activities on a part-time or seasonal basis."

The statistics are surprising. In Malaysia, some 63% of all manufacturing jobs were in rural areas, for example.

In Sierra Leone, they found that 86% of the total jobs in manufacturing and 95% of the manufacturing establishments were in rural areas. Similarly, in Bangladesh some 70% of these activities were performed by rural residents; the breakdown in Malaysia was 63%, India 57% and South Korea 32%.

When another MSU team looked at Jamaica, they found that 80,000 people, or one-tenth of the national work force, was employed by small enterprises engaged in activities that included garment manufacturing, woodwork and metal work. Similar findings were reported by a third MSU group working in Haiti, where tailors, carpenters, and machine repairmen accounted for nearly half of all small businesses—33,000 workers involved in 8,500 enterprises. The Honduras survey uncovered 59 types of small businesses and repair services in the rural areas. MSU researchers in Honduras also learned that women played a much larger role in operating these activities than was expected. Women owned nearly 61% of all these small firms and made up 50% of the work force.

Proponents of small business development insist that small operations can make money and enhance local employment, particularly among women. For example, women in Ghana now harvest and process cassava, with little profit. Cassava is a starchy tropical plant whose roots are eaten in spoon bread fashion in most of West Africa. The roots are peeled, grated and fermented into a food called "gari." Experts say that packaging and marketing of gari in

Ghana can supplement village income significantly. Specific projects can be designed; women can be organized into cooperatives or groups, pooling their skills and resources.

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"Many donors have just begun collecting data on small enterprises but have not yet begun projects to help strengthen them," says Louis Faoro, an industrial psychologist with the newly-formed AID Small Enterprise and Employment Unit (SEEU). Faoro says that historically when many donors looked at developing countries they tended to think in terms of creating high-technology to absorb excess labor. What they didn't see were the many small enterprises that employ more people for far less investment than any imported large enterprises could. We often forget that our own country's development in great part was based on small enterprise and our growth even today is sustained by that same base.

"One prevailing theory seems to be that agricultural development will stimulate a great demand for goods and services and the response to that demand will contribute to general economic growth. But this does not necessarily follow, and even if it did, increasing farm productivity and incomes remains a difficult task at best."

Faoro is concerned with finding "new ideas" to generate growth and complement overall development within these countries. "Bureaucracies do not typically spawn these ideas; they come from people who recognize and seize opportunities. We feel that energizing such people, helping them create small enterprises, is a cost-efficient and effective path toward economic development."

One suggested solution to the difficulty in getting loans: a privately funded, international business investment corporation.

Much more could be done to improve the productivity of these enterprises, adds William Rodgers, chief of AID's rural enterprises and employment division. Credit could and should be made available; small scale producers should be retained in business operation and bookkeeping; and they should have better access to raw materials and supplies. The Partnership for Productivity, a U.S. private voluntary organization, discovered that after it made small loans to brickmasons in Liberia, the brickmasons built local kilns and rural housing construction improved.

The difficulty in getting loans seriously limits the growth of small businesses in many cases. Providing these loans involves risk. For the most part small businesses lack collateral and many are mobile or operate great distances from the commercial banking centers.

Rodgers, who also is a member of the new AID small business unit, suggests that one approach might be to establish an international small business investment corporation in developing countries, using private funding to finance small businesses. Such a corporation could guarantee loans in a manner similar to the U.S. Small Business Administration. "There would be a certain amount of risk, but we've got to strengthen the private sector and let it take over some of the burdens of development. If you are going to ever develop the rural areas, for example, you have got to put more industry out there. There needs to be local supply sources for small industries. Processing plants also need to be located in the rural areas, not only to supply alternate markets for farmers' produce but to generate local employment as well. If you seriously want to improve employment opportunities, small business should be expanded."

Critics of the small business investment approach maintain that these enterprises require too much in the way of investments of both capital and technical assistance;

The cost-effective promotion of small enterprises through local groups is at the heart of a new U.S. initiative.

that they can't compete with larger companies that produce cheaper and better goods more efficiently; and that they would require greater monitoring by donor agencies and host country governments. But advocates suggest that the burden for supervision could in many cases fall on local business associations, chambers of commerce or private voluntary agencies. As far as risks are concerned, the advocates quickly point out that the failure of a small business is far less catastrophic to investors than the failure of large-scale industry.

The cost-effective promotion of small enterprises—particularly those at the bottom of the scale—through assistance to local nongovernmental organizations is at the heart of a new initiative in AID's Office of Urban Development. This new project, which will sponsor six pilot small business assistance projects in developing countries, is based on the recently completed first phase of the PISCES (Program for Investment in the Small Capital Enterprise Sector) Project in which assistance programs were studied in 20 countries. The study included: Cameroon, Gambia, Kenya, Swaziland, Tanzania, Upper Volta, Bangladesh, India, Philippines, Thailand, Barbados, Colombia, Ecuador, El Salvador, Honduras, Panama and Peru. PISCES researchers confirmed that the informal sector is a major source of employment for the urban poor in developing countries—usually at least 20%. "Sometimes more than half the jobs in urban areas are accounted for by this sector," says Michael Farbman, AID's PISCES project manager.

The new AID Small Enterprise and Employment Unit proposes revision of credit practices, tax laws and other reforms to accelerate the development of the small and medium enterprise sector. The unit's development experts have proposed "a survival kit" for small enterprise development: basic training in management and bookkeeping, readjustment of credit and tax incentives, technical assistance and more research and advisory sources. The unit maintains that more efficient small-scale producers would be more likely to hire additional workers than would their larger counterparts. Building rural roads, forming industrial estates or market towns—and similar projects—will not only enhance small business productivity, if planned properly, says Faoro, but in the end boost national development as well. ☐

Emmett George is a public information officer in AID's Office of Public Affairs.

WHAT THE MEDIA SAY...

If you begin your consideration of this year's political issues, as we do, with the prospects for betterment of the condition of poor black Americans, you get directly to the question of jobs and the economy. Which in turn takes you to the energy dilemma. And from there it is a short journey overseas. Energy is at the center of much foreign policy concern—its effect on economies (and therefore on allegiances and alliances and prospects for national progress) all over the world.

—Washington Post

Technology transfer is the somewhat arcane designation applied to such sharing of industrial knowledge and skills. A study just completed by the Economic Policy Council of the United Nations Association of the USA breaks new ground by seeking to integrate what, until now, have often been conflicting labor, business and academic views on the subject.

The Council itself deserves a word of explanation. Appreciating that efforts to combat protectionism and preserve a free and open trading system often have been endangered by failure to include labor in discussions of world trading matters, UNA-USA several years ago established its economic policy council to provide a forum bringing together representatives from business, unions, government and academia.

Despite initial differences, a consensus did emerge. Most interesting, perhaps, was the shared view that transfer of technology could not be separated from innovation at home, that the United States had been falling behind badly in research and development, and that a steady stream of new technology was needed if the United States was to hold its place in the world. Equally important was the conclusion that the United States should do as much to seek out innovations from abroad as to produce new ideas at home.

—Journal of Commerce

President Carter has pledged the strong commitment of the United States to expansion of aid to the Third World by beefing up the World Bank and the International Monetary Fund, bluntly rejecting proposals that would carry out their loan and development functions through the United Nations.

—Washington Post

The Cambodian food crisis appears to be over, thanks mainly to a massive international aid effort which, for all its shortcomings, averted mass starvation and gave the battered country a new lease on life.

Western relief agencies have been careful not to emphasize the improvement for fear it will be taken out of context and that aid-giving nations will shut off their donations. The relief agencies warn that Cambodia will need more aid next year.

But the situation has improved so dramatically in the past two months that a senior Western analyst who has been consistently pessimistic was moved to say:

"There's no doubt about it. Things are better, so much so that I'm feeling a little uppy. But I won't uncross my fingers until December when the rice harvest is in."

—Los Angeles Times

To reduce and eliminate massive absolute poverty lies at the very core of development itself. It is critical to the survival of any decent society.

Development clearly is not simply economic progress measured in terms of gross national product. It is something much more basic. It is essentially human development, that is, the individual's realization of his or her own inherent potential.

Absolute poverty, on the other hand, is a set of penalizing circumstances that severely impair the individual's pursuit of that very potential. It is the direct denial of the benefits of development.

But it is more than just that. It is an open insult to the human dignity of us all: to the poor themselves, because simply they have deserved better, and to all of us, for we have collectively had it in our power to do more to fight poverty, and we have failed to do so.

—Robert S. McNamara
Philadelphia Inquirer

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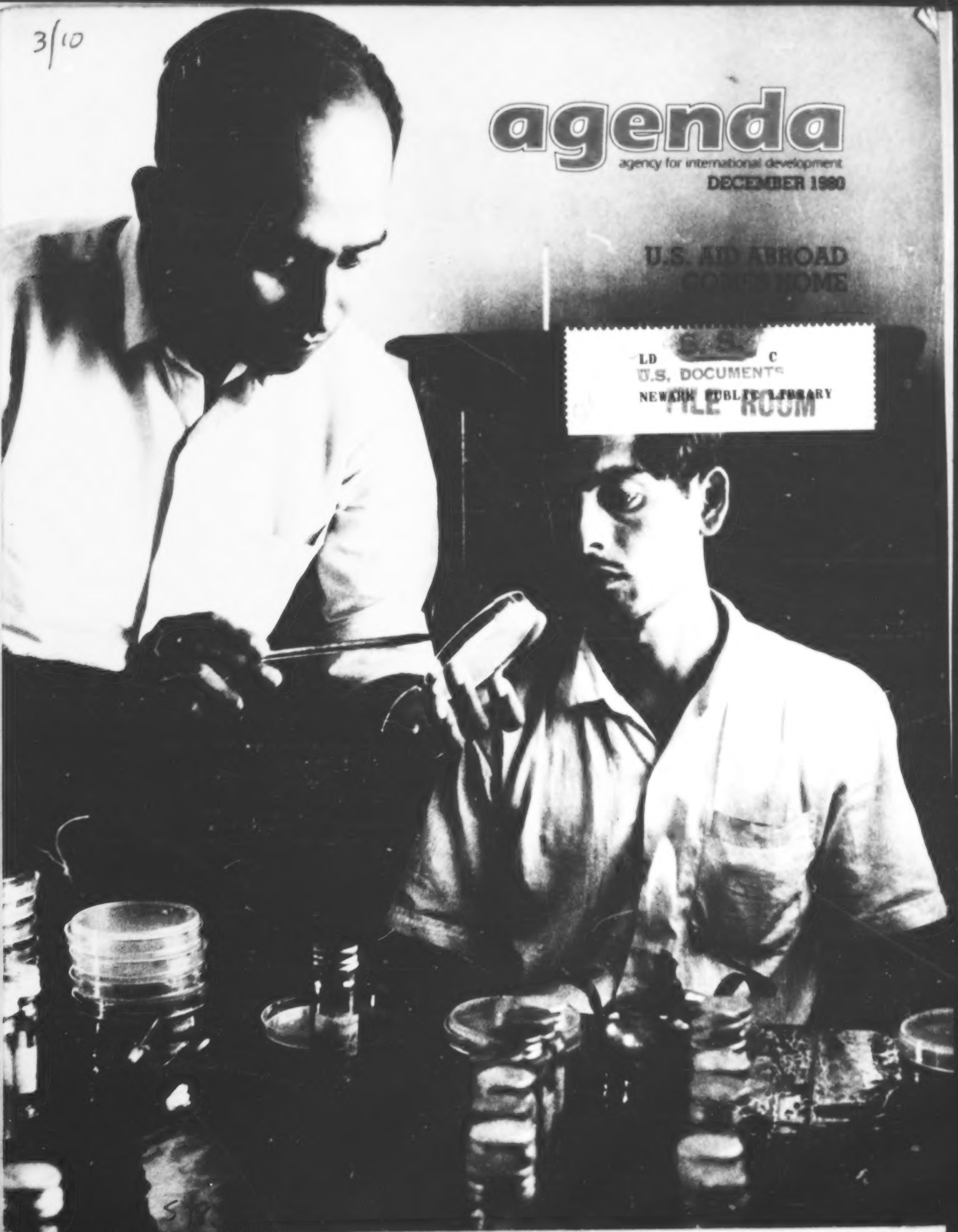

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DECEMBER 1980

U.S. AID ABROAD COMES HOME

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DEVELOPMENT UPDATE

The number of children who die of malnutrition each year in the Third World equals the number of children under 15 in California, New York, Illinois and Texas together.

A woman's lot in China: "Clearly the most important social changes affecting fertility patterns *in China* have been in the status of women, especially the full integration of women into the labor force," states the Draper Fund Report. "It should be stressed that Chinese officials do not justify female education and employment as a means to population control. Sexual equality is the stated goal and family planning one of the means for achieving it. China recognizes that women represent half its human resources and that they need to be relieved of 'excessive family burdens' if they are to 'hold up their half of the sky.' "

Sputnik a la 1980: "Afghanistan and Iran may prove to be the 1980s' version of Sputnik—events which kindle American interest in coping more effectively with the outside world," says Charles Bray, deputy director of the U.S. International Communications Agency. "The lead time involved in preparing a generation of area specialists is substantially greater than that needed for a new series of ballistic missiles. Because world events have become a permanent part of our domestic agenda, our preparation for involvement in that world must be consistent and continuous, not dependent on crises like Sputnik or Iran."

Fertility rates are now at or below the average 2.1 births per woman needed to replace the population in the long run in two developing countries: Cyprus and Singapore.

One penny for the world's poor: "World poverty is the greatest threat to our national security, and the gap between the resources available for the first line of defense and the second, which is our military effort, is too extreme." So writes Mary Jane Heyl, AID's coordinator for security assistance and a former Army officer. "Two security objectives—the war on international hunger, poverty, and disease and the augmentation of our military strength—are inevitably interrelated and complementary, not competitive. Our national priorities are already well reflected in our budget. Last year 58 cents out of the tax dollar properly went for attempts to correct the serious social problems here at home; 24 cents for direct defense through military effort; but only one penny for everything that is called foreign aid."

Ninety percent of the people inhabiting the tropics depend on woodfuel for their domestic needs.

Notable Quotable: The House Appropriations Committee, not always one of foreign aid's most enthusiastic supporters, had this to say recently: "The numerous field investigations of AID programs conducted by the committee have generally shown a highly dedicated group of people frequently working under adverse and sometimes highly dangerous conditions. In fact, more and more it appears that AID personnel are becoming the best and most highly respected of the development personnel in various countries. This has an immediate and beneficial impact in regard to U.S. interests."

agenda
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Cover: U. S. assistance to poor nations around the world comes back to us in many ways. Breakthroughs in AID-funded research are just part of the dividends. See article on page 2.

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Douglas J. Bennet Jr., Administrator
Norman Sherman, Director
Office of Public Affairs

Press and Publications Division,
Office of Public Affairs
Agency for International Development
Washington, DC 20523
(202) 632-8351

Edward R. Caplan, Division Chief
Lee Mullane, Editor

FOREIGN AID
GENEROSITY RETURNED

Besides contributing to a better world, U.S. aid abroad helps at home.

by James Bednar

"Foreign aid is a giveaway." Sound familiar? A lot of Americans believe it—and resent it.

Just what do people in this country get out of the billions of dollars poured into developing countries each year? World peace, stability and an end to human misery, the main goals of the program, help everybody. But imports, exports, new energy sources, improved food, health and education here in the United States—all are part of the foreign aid dividends, too.

Look into some obscure corners and you're likely to find evidence of the U.S. foreign assistance program. Take home improvement, for instance.

Self-help home improvement programs, now common in America's inner cities, on Indian reservations, and in Puerto Rico and the U.S. Virgin Islands, were born out of this country's work in developing nations. Starting with the Marshall Plan in Germany right after World War II and continuing today under the AID program, the United States has provided technical and financial aid to help people improve homes and rehabilitate entire communities. Under the so-called "aided self-help" approach, tenants or owners do their own work with materials supplied by the government. It is relatively inexpensive and encourages community involvement and home ownership. In U.S. cities, similar programs have concentrated on rebuilding deteriorated houses and apartments. The family orientation and education techniques perfected in Latin America have helped prepare families in U.S. public housing for new responsibilities when their projects are converted to cooperative ownership.

And in cities throughout the United States health centers are operating successfully today thanks in part to an AID project in India. Under an AID grant, Johns Hopkins University in Baltimore, designed a health center using both highly trained and far less trained personnel. The idea was to enable the center to use people who were readily available, even if they weren't highly skilled. It worked. Upon returning from India, the professors introduced their approach in courses at the university. Later, using the Johns Hopkins design, Harlem, Cincinnati and other American cities started similar programs. The U.S. Bureau of Indian Affairs put the plan to work on Indian reservations. Dr. Joseph Alter, one of the original researchers, also has drawn upon his experience in India for further work in Appalachia.

Last year, smallpox was wiped out. The United States contributed $27 million to the effort to eradicate the killer disease. What that means for Americans can be expressed not only in terms of human lives saved, but in dollars, too—$110 million. That is the amount this country used to spend every year for routine smallpox vaccination programs, quarantine services and medical care.

In addition, medical research in Bangladesh and India, backed primarily by AID and the National Institutes of Health, recently developed an oral rehydration technique to treat diarrheal diseases (see article, page 10). The oral method is easier to administer and requires less sophisticated equipment than the intravenous feeding used before. Oral rehydration has been a significant medical advance, saving countless lives in the Third World, and now U.S. doctors have begun to use the method especially for treating severe diarrhea in small children.

Still another medical breakthrough offers help to American and Third World women alike. AID-funded research has developed a safer, potentially reversible method of female sterilization. Developed at Johns Hopkins, a new tubal ring method is considered far safer than the traditional coagulation process using electricity. The latter has caused burns in some cases.

In still another health-related area, some American children are drinking vitamin A fortified low fat milk today as a result of AID-sponsored research in the 1960s. Working in Brazil, Washington University researchers proved that vitamin A could be added to low-fat milk, thus

helping prevent blindness. Previously, scientists believed that fat was necessary to absorb vitamin A effectively.

The results of an AID nutrition project in Chile have been used in U.S. research and feeding programs, for, among others, migrant workers, American Indians and other low-income groups. Even the food in U.S. hospitals, prisons and other institutions is better because of research AID helped support. In 1969, General Foods developed a macaroni-like food from corn, soy and wheat. It is seven times as nutritional as conventional pasta—and costs less.

American school lunches are better nutritionally, too, and again U.S. foreign aid dollars helped. AID-funded research by Kansas State University improved the nutrition content of bread by adding flours made from plants common in developing countries and in the United States. The plants include soybean, chickpea and broadbean. The same flour is now being used here.

Smallpox is dead, thanks in part to U.S. assistance. Strides forward in many fields from medicine to agriculture and education help make life better for everyone.

Developing countries have given American schools more than improved lunches. Since the 60s, according to AID's Office of Education, the Agency has been one of the leading promoters of radio as an educational tool. The success of AID radio education projects in Latin America, Africa and Asia has inspired the U.S. Department of Education to strengthen its support for domestic educational radio programming.

In the late 1960s, AID helped draft a NASA (National Aeronautics and Space Administration) policy that made experimental satellites available for education. That came after India began using satellites to beam educational television programs to rural schools. According to Albert Horley, former Health, Education and Welfare director of telecommunications policy, the Indian program "gave the United States the incentive to use our satellite technology for social programs."

The AID program in India contributed both the management model and evaluation design used in programs throughout this country. Programs based on the Indian experience have been successfully run by HEW, the Appalachian Regional Commission, the state government of Alaska and the Federation of Rocky Mountain States. Another AID television project, this time in El Salvador, sparked a similar program in Kentucky.

Technology and agriculture have combined to benefit American farmers. The United States became the agricultural giant that it is with acquired crops: corn from Latin America, wheat from the Middle East, sorghum from Africa and India. Benjamin Franklin introduced soybeans to the United States, bringing the seeds from the Jardin des

Plantes in Paris which, in turn, had acquired them in the Far East. The agricultural contributions of the Third World continue today through the technological advances achieved in research sponsored by AID, by other donors and the developing countries themselves.

For example, the U.S. potato growing industry is in line for a boost from research done at the International Potato Center in Peru. That research was funded by AID, to the tune of $1.7 million last year. For the first time, thanks to the research, potato farmers may be able to plant a potato seed. Up to now, the "eye" or tuber cut out of a grown potato was the only source of the new potatoes. But the tubers sometimes spoiled, took up space. The seed may change all that. Moreover, the center is working on new varieties of potatoes that could be grown in hot humid climates or in coastal areas in addition to the traditional northern fields.

International agricultural research centers in the Philippines and Mexico, partly supported by AID, developed high-yield, semi-dwarf varieties of wheat and rice that have since spread throughout the world. Some of the wheat varieties have been used directly in the southwestern United States, others in further domestic breeding programs. Preliminary U.S. Department of Agriculture data for 1979 show that about a third of all U.S. wheat fields were planted with semi-dwarf varieties, these concentrated in Minnesota, North Dakota, Washington, Texas, Oklahoma, Kansas, Idaho and Oregon. Throughout California in 1979, farmers reported record yields of rice varieties developed from Philippine strains.

Other plants show promise for future use in the United States. Although it grows naturally even in the deserts of the United States, the jojoba plant's potential came to light only after Third World nations began to use it extensively. The jojoba is a scrubby shrub that grows 15 feet high even in the driest and hottest climates. Jojoba oil can be used as a fuel, lubricant, feedstock and as cooking oil and in cosmetics and hair oil. It has potential for use in automobile transmissions and engines and other high speed machinery. Its lubricating power is so great that it exceeds the limits of conventional testing equipment. In 1977, at least one racing car in the Indianapolis 500 used a jojoba-based engine oil. The oil can also be used to make floor and automobile waxes, wax fruit, carbon paper and slow-burning candles.

In the early 1970s, Indians sold jojoba seeds and oil collected from wild plants growing on reservations in Arizona and California. By 1974, demand became so great that Indian jojoba plantations were established with federal support. Jojoba covered more than 2,000 acres in California by 1978. The numerous uses and limited supply have companies competing for all available supplies of jojoba oil. It is now going for as much as $70 a gallon.

Another Third World resource may become an alternate source of energy in at least one state. The leucaena, known as the "miracle tree" because of its rapid growth and many uses, originally grew in Central America. The Maya and Zapotec civilizations spread some of its varieties throughout the region. By the 19th century it appeared on the Hawaiian islands. Under the foreign assistance program it is being used extensively to reforest over-

New potato varieties, a potato seed, a safer contraceptive, more nutritious food, all are just a few ways foreign aid comes home.

cut and eroded areas around the world. Now Hawaii's state government has proposed to fuel electrical generators on Molokai with leucaena grown on the island's plantations.

Other projects in developing countries give the United States important information on alternate energy sources. An AID-funded photovoltaic project in Upper Volta had some technical problems; the solution worked out will help keep solar energy systems running in the United States. When some of the individual panels in the solar energy system began to fail, technicians were sent in to find the cause and correct it. They did and the information has been made widely available to others in this relatively new field.

An age-old process of creating methane gas from decaying manure still used in China, India and other countries stands as another alternate energy source for the United States. According to the *Washington Post*, a Pennsylvania farmer has been using "cow power" since October 1979. Currently producing much of the electricity he needs, the farmer hopes to become an energy producer rather than a consumer by using his corn waste to create alcohol fuel. If 60% of U.S. agricultural waste were similarly processed, the energy produced would be equal to 155 million barrels of oil a year—enough to supply all the electricity for 20% of the 78 million American homes.

With the continually rising cost of energy, any effort to conserve or create alternate energy sources is of interest to the United States. According to a HUD report, the Mexican people have begun to develop "small freestanding, energy self-sufficient communities." Under a cooperative agreement, any resulting technology advances in such areas as solar energy the government of Mexico will pass along to the United States.

Perhaps the greatest benefits of all will come in the future through the further research being funded by AID. A technique called "tissue culture breeding" may result in the reproduction of plant varieties tailor-made for specific environments. It may lead to two wheat crops in the northern climates instead of one; tomatoes in the tropics and crops in the southwestern desert of the United States. Cornfields in the desert may not be such a far-fetched idea after all.

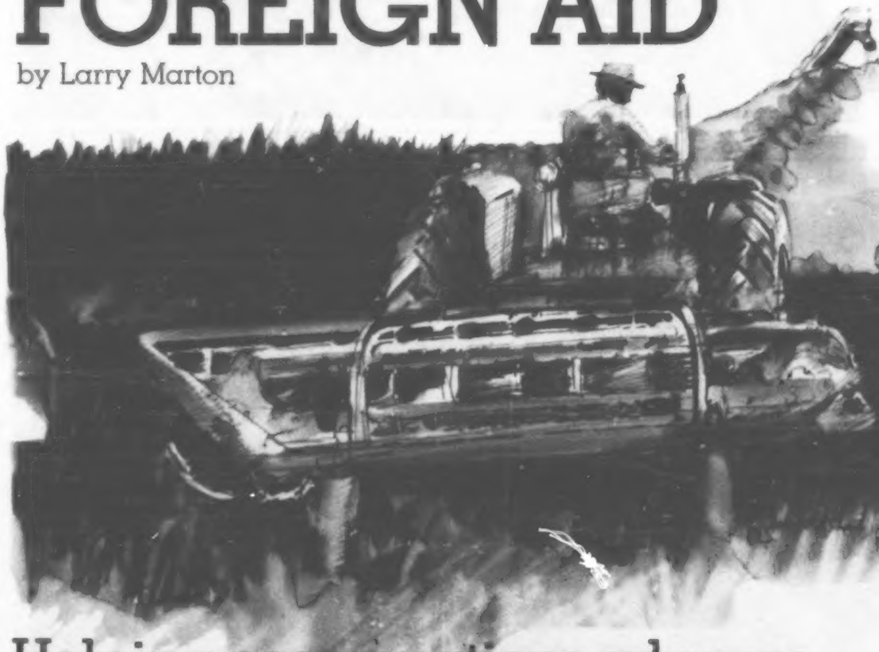
A cooperative effort between the Tennessee Valley Authority (TVA) and AID has created perhaps the world's best fertilizer research and resource center. Both the TVA's center and the International Fertilizer Development Center (IFDC) are located in Muscle Shoals, AL, and can easily exchange scientific information. Half of the international center's funding comes from AID, the rest from other countries and international organizations. IFDC's research currently focuses on the development of less energy-dependent fertilizers as well as on improving such fertilizers as phosphate, nitrogen, and sulfur. The research results of both centers are available to U.S. farmers, fertilizer industries and agri-businesses.

New potato varieties, a potato seed, a safer contraceptive method, more nutritious foods and improved energy systems are just a few the ways foreign assistance comes home. □

James Bednar is on the staff of AID's Office of Public Affairs.

AMERICAN FARMERS AND FOREIGN AID

by Larry Marton



Helping poorer nations advance is a factor in the growth of U.S. agricultural exports.

What is the relationship between foreign aid and foreign trade, particularly foreign agricultural trade? No one seems to have a clear idea, not even the farmers who are selling their products overseas.

One thing is clear—foreign aid is about as popular in the United States as an aching tooth. Some farmers and "agribusinessmen" complain that we keep making all of the other nations of the world so good at growing and producing that we drive down their demand for our farm products, and set them up as competitors in international markets.

The fact is that the U.S. foreign aid program is a very significant factor in the growth of U.S. agricultural exports.

Over the past 10 years, for example, the developing countries—which are the primary recipients of food aid and technical assistance—have steadily increased the amount of American farm products they buy from us—from $2 billion to $10 billion. During the same period, agricultural production within a number of Third World countries, such as South Korea, Taiwan, Mexico, and the Philippines, expanded at a rate of more than 4% a year. Estimates are that every year 25 to 30 million acres of U.S. farmland are harvested exclusively for the Third World market.

The market potential is enormous, especially given population growth and the spread of malnutrition in developing countries. Even marginal improvements in Third World per capita income could significantly affect world trade. U.S. foreign assistance programs are trying to do just that.

Here is how it's supposed to work. An example: Several months ago the World Bank approved a $65 million loan to Indonesia. (The World Bank is an international institution which, among other functions, aids developing countries with loans for developmental projects. U.S. support of the World Bank is part of this nation's foreign aid program.) The Department of Agriculture participates in reviewing agricultural loan applications.

The Indonesian loan was keyed to the development or rehabilitation of several thousands of acres of farmland. In analyzing the project, the reviewing officials determined that 5,750 settler families would triple their incomes in 12 years, about 11,500 permanent jobs would be created, and more than 4,000 casual laborers would be employed for up to six months each year. Indonesia purchased $322 million worth of farm products from us last year, compared with $96 million in 1969. It seems reasonable that Indonesian purchases of U.S. farm products will continue to go up as their national income rises, thanks, in part, to our foreign aid program.

A strong agricultural foundation is the basis for a strong national economy in nearly every developing country. To achieve economic strength, to narrow the income gap between developing and developed nations, there must be a substantially higher level of investment in the developing countries. Obviously, the developing countries must sustain themselves. Just as important is the need for the United States and the other developed nations to provide increasing levels of assistance.

As much as this country has contributed in foreign aid over the years, the problem of slow economic growth remains among the poorer countries. They depend on U.S. aid to support their growth, however small it may be. Any interruption in the flow could diminish, even reverse the growth process. What's more, if U.S. foreign aid programs are reduced, American farm producers may well feel the impact in the years ahead.

Americans generally, and American farmers specifically, have a major vested interest in the U.S. foreign aid program.

Economists at the U.S. Department of Agriculture have studied 14 countries, all major recipients of U.S. economic and technical assistance. Among them were India, South Korea, Egypt, Israel, Taiwan, Thailand, Morocco, Nigeria, Jamaica, Brazil and Hong Kong. Their average annual growth rates in agricultural production have been substantially greater than in the United States. In the process, they have developed their economies and consumer levels to the extent that their present imports of U.S. farm products are roughly 20 times greater than 20 years ago. And as other countries advance we can expect the same. □

Larry Marton is a public information officer with the U.S. Department of Agriculture.

U.S. Farm Exports Doing Well

According to the U.S. Department of Agriculture, nine countries imported more than 1 million tons of U.S. wheat during the 1979-1980 marketing year. The leading importers were the U.S.S.R. (4.4 million tons), Japan (3.2 million) and Brazil (2.1 million). Others in the top nine with imports in million tons were South Korea (1.8), China (1.6), Egypt (1.3), Nigeria (1.1) and Bangladesh and the Netherlands at slightly more than 1 million tons each.

Here are some highlights of U.S. farm export activity, courtesy of U.S.D.A.:

- An agricultural trade surplus of $17.7 billion, during October-June, has helped lessen the effects of a burdensome $39 billion non-agricultural trade deficit. Last year, in the same nine-month period, these figures were $11.5 billion and $28.3 billion respectively.
- U.S. exports to less developed countries jumped 36% in value through June. This has been fueled by a 54% (or $1.8 billion) increase in grain exports.
- Burgeoning demand for feedgrains in Japan and soybeans in Western Europe was a major factor in the 21% gain in U.S. farm exports to developing countries.
- Among the centrally planned countries, Eastern Europe is surpassing the U.S.S.R. as the major U.S. market. Poland and the German Democratic Republic have accounted for 62% of the increase so far.
- U.S. agricultural imports have leveled off at just under $1.5 billion per month. Imports of coffee and sugar have shown the most significant gains. □

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Jordan's medical establishment is pitting oral rehydration and therapy against infant diarrhea.

by Marianne Pearson

NEW WEAPON IN AN OLD WAR

On top of Amman's highest hill an assortment of low buildings cluster to form Al Bashir Hospital, the largest in Jordan. The lack of architectural elegance is contrasted by the neighboring Abu Darwish Mosque, a landmark of the city's skyline.

In the pediatrics ward, a doctor gestures toward a row of cots, many of them empty. One holds a baby receiving intravenous fluids. "This was formerly the busiest ward in the hospital," he says, pleased to relinquish the distinction to another ward. At the end of the hall is the institution that has made the difference, the national Oral Therapy Training Center, the first of its kind in the Middle East.

In the four months before September, when the center was established, 160 infants received intravenous therapy in the pediatrics ward. During the center's first three weeks, infants arriving at the hospital with a 5-10% loss of body weight received oral rehydration therapy. Of the 37 infants registered, only one had to be switched to intravenous therapy, a premature baby who also had blood poisoning. The drop in the use of intravenous fluids forecasts more efficient uses of medical facilities and personnel in Jordan's hospital, not to mention far less trauma to the children.

"Several days of rather cumbersome intravenous therapy have been narrowed down to a day of rest and oral therapy," comments David Nalin, who directed the establishment of the new center for AID.

Nalin, director of the University of Maryland's International Center for Medical Research, first visited Al Bashir Hospital a year ago, when he participated in a regional WHO conference on diarrheal diseases in Jordan. Nalin, now a director of the Pakistan Medical Research Center in Lahore, which is establishing a similar center, was invited to return to give a series of seminars on infant diarrhea and modern methods of treatment. Last summer, he and Enriqueta Sullesta, public health nurse and one of the developers of community-based oral therapy projects in the Philippines, gave AID-sponsored seminars to 250 physicians, nurses and midwives in Jordan. They received the new ideas enthusiastically, and Jordan's minister of health, Zuhair Malhas, decided to proceed immediately with establishing the oral therapy training center.

Nalin anticipates that within a year modern methods of treating acute watery diarrhea—the disease that accounts for more deaths than any other in Jordan—will be available throughout the country. In Jordan, 80% of the people live in relatively urbanized areas with fixed-based medical facilities—hospitals, clinics and maternal-child health centers. "Once we have permeated the health structure with modern concepts and practices, we can anticipate a significant reduction in deaths due to acute watery diarrhea," he says.

Modern treatment methods of diarrheal diseases revolve around the use of powdered formulas such as Oralyte, a preweighed mixture of glucose and salts, sealed in moisture-proof packets and distributed by UNICEF. Careful training of health workers, who will in turn train others to use the formula, is also required. Other mixtures and home-prepared solutions are used in other projects and programs.

The formula, manufactured for 5 cents per packet, was developed after extensive basic research was carried out at what is now the International Center for Diarrheal Disease Research in Dacca, Bangladesh, research funded by AID (Agenda, December 1979). Trials on such a solution started in the late 1950s in Jordan. Nalin joined the staff at the research laboratory in the late 60s when oral therapy was already being used, but along with intravenous therapy.

A practical regimen based on intake and output of fluids in patients with cholera, the worst of the watery diarrheas, made it possible to reduce the use of intravenous fluids by as much as 80%. Milder cases, it was shown, could be successfully treated solely by oral therapy. Gradually, through the last decade, the new oral method of treating diarrhea has won acceptance; Agency health experts consider it the linchpin of AID's and WHO's emphasis on global diarrheal disease control.

Jordan's medical establishment—the pediatricians and health workers—are expected to get the message to the public. Three-week courses at the new center during the next six months will provide the medical workers with theoretical and practical knowledge of the oral therapy method, which they will be expected to pass along to others at their home institutions.

Work on preventive measures will follow, with emphasis on teaching

the trainees how to work effectively with mothers and patients. Mothers are most highly motivated to learn the oral therapy method when they arrive at a health facility with their sick children. They are encouraged to remain with their children and help with the therapy. The center's philosophy is that mothers can learn how to rehydrate their children.

Teaching mothers correct nutritional practices is another preventive measure, the center emphasizes. They are taught, for example, to keep a sick child well-fed, contrary to the common practice of "resting the stomach" during diarrheal illnesses, a practice that aggravates the illness.

The Oral Therapy Training Center has two units, one for inpatients and another for outpatients with milder cases. A third, for nutritional rehabilitation, is planned. A special trained team will work with children referred from the other units to get their nutrition into shape and break the vicious cycle that goes from malnourishment to diarrhea and back again.

Several poignant cases underline the importance of oral rehydration. A 9-month-old girl, had been on intravenous for some 30 days. Her head had been shaved to find additional veins in which to insert intravenous needles. Her body was black and blue from the therapy, yet her condition had not improved.

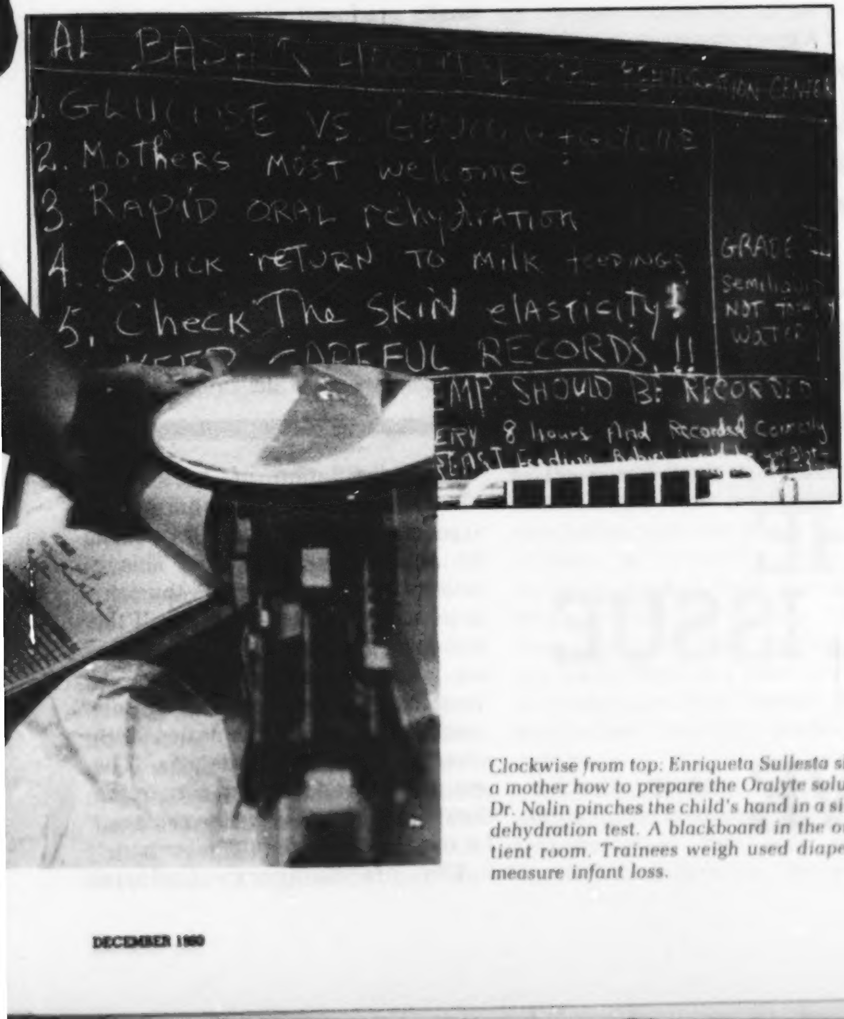
One of the first patients to be admitted to the oral rehydration therapy ward, she was well enough within two days to discontinue therapy.

A mother, who brought her child to the center during its first week of operation, returned the following morning without clothing in which to take the child home. The mother, amid smiles at her child's improvement, told staff members she had not expected the child to live.

In many cases, children brought to the center had previously been treated privately. The charge for treatment came to about $20, a large sum for people whose average monthly income is less than $90. The cost of treatment at the center is about $3.50.

Nalin is looking forward to next year, when similar centers are expected to be set up in all 11 Ministry of Health referral hospitals and expanded to health centers and maternal and child health centers throughout the country. Once that is accomplished, Nalin's prediction—that Jordan will be the leader in the control of diarrheal diseases in the Middle East—will have come true. ☐

Marianne Pearson, a freelance writer and stringer for the "Jordan Times," an English language newspaper in Amman, is the wife of AID development officer Thomas Pearson in AID's Jordan Mission.


AL BASH... REHYDRATION CENTER
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3. Rapid ORAL rehydration
4. Quick return to milk feedings
5. Check The skin elasticity!
KEEP CAREFUL RECORDS !!
TEMP SHOULD BE RECORDED
EVERY 8 hours And Recorded Correctly
BREAST Feeding Babies
GRADE II
Semiliquid
NOT
Water

Clockwise from top: Enriqueta Sullesta shows a mother how to prepare the Oralyte solution. Dr. Nalin pinches the child's hand in a simple dehydration test. A blackboard in the outpatient room. Trainees weigh used diapers to measure infant loss.

In the June *Agenda*, "Food or Fuel: The Bittersweet Choice," Lester Brown warned against diverting food crops into fuel production. U.S. Rep. Berkley Bedell of Iowa believes Brown has overstated the danger to world food resources. Here are their opposing views.

by Berkley Bedell

DOOMSAYING ON SYNTHETIC FUELS WILL GET US NOWHERE

The well-known Worldwatch Institute's "Food or Fuel: New Competition for the World's Cropland," has given rise lately to a flurry of publicity. The attention has arisen out of some of the report's conclusions, most notably that "Using food crops to produce alcohol (for fuel) will undermine the global disparities in income as perhaps nothing else has." These are serious, and in fact, overdrawn, statements, and I would like to briefly point out where the report has erred.

First of all, the report's author, Lester Brown, the president of the Worldwatch Institute, correctly identified ethanol as "the most attractive short-run alternative to gasoline in the eighties." The use of a 10% blend of ethanol with 90% gasoline as gasohol is well known, and steps are gradually being taken to increase its production. Not only does ethanol serve both as a domestically produced gasoline extender, as well as a valuable octane enhancer, it is the only synthetic fuel that can be brought "on-line" in significant quantities in the near term.

I like to call alcohol produced from renewable resources the "sunthetic" fuel, because it can be readily derived from many materials that depend on the sun for life, especially grains, forestry materials, and other forms of biomass. Currently, the technology is best developed for the

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PUTTING THE FOOD-FUEL ISSUE INTO PERSPECTIVE

by Lester Brown

The distillation of grain into alcohol, it is commonly argued, does not use the protein in the grain, only the starch. This is quite correct, but starch is the principal component of all grains. If the high-protein residual grain remaining after distillation is used as livestock feed, it can be used successfully only in combination with other high-energy feedstuffs. The energy removed from the corn in the distillation process must be replaced by some other feedstuff.

The protein/energy (calorie)

fermentation of sugar and root crops, as well as all of the major cereals, especially corn and wheat.

Where Mr. Brown has seriously erred in his report, is in his ready assumption that the diversion of cereal crops, like corn, to alcohol production will mean their total disappearance from the food/feed stream. He writes:

If cropland is shifted to the production of fuel for automobiles, it will come at the expense of grain for export. Reaching the U.S. annual production goal of 2 billion gallons of ethanol by the mid-eighties would require 20 million tons of corn or its equivalent—one-fifth of the current exportable grain surplus. In the absence of surplus production capacity, the U.S. agricultural fuel program will affect directly the price and availability of grain for scores of food importing countries.

This statement is simply not true for the following reasons: One-bushel of corn yields 2.5 gallons of ethanol. Taking Mr. Brown's target of 2 billion gallons of ethanol for fuels, that would mean approximately 800 million bushels of corn.

During the 1979-80 crop year, the American farmer produced over 7.5 billion bushels of corn. Of this amount, approximately 4.35 billion bushels will go strictly for feeding livestock and poultry in this country. Another 615 million bushels is expected to be used domestically for food, seed, and industrial purposes. Exports will account for approximately a third of the total U.S. corn crop, at 2.275 billion bushels, with the bulk of this again being used for feeding purposes overseas. Finally, it is projected that carryover stocks of corn will exceed 1.8 billion bushels.

The above breakdown makes it clear that it is a misnomer to talk about a "food versus fuel" tradeoff when using corn for the production of alcohol fuel. Rather, if one existed, it would be a "feed versus fuel" tradeoff. Even this is fallacious, as is clearly borne out when one examines just exactly what the fermentation of alcohol from grains yields. For the sake of convenience, it might be useful to look at the corn wet milling process used by the largest producer of fuel-grade alcohol in the United States, ADM in Decatur, IL. This facility, using corn at 15.5% moisture, extracts the following components from a bushel of corn (47.32 pounds dry solids, which is 7% to 9% protein); 9.2 pounds of 21% feed protein; 2.7 pounds of 60% gluten meal; 3.5 pounds of germ; 31.5 pounds of starch, which yields 2.5 gallons of anhydrous ethanol.

All that is lost of the bushel of corn is the starch; ADM exports much of the rest of the high value components which help to further reduce the cost of producing a gallon of ethanol.

While it is clear that this process yields a valuable string of co-products, the most impressive facts are yet to come. In carefully constructed livestock feeding tests performed by experts at Land O'Lakes Cooperative, the Universities of Kentucky and Nebraska, and Iowa State University, it was demonstrated that the feeding of the co-products from alcohol production can actually displace corn in the ration on a one-to-one basis, provided that abundant, low-value additives like corn stover are used. Due to the "high by-pass" characteristics of the corn gluten meal, a ration of corn cobs, alfalfa, a minimal amount of corn, molasses, and urea resulted in a feeding gain of approximately 2.3 pounds per day, with the additional benefits of less fat and higher quality grade of beef. Thus, there is no "feed" versus fuel trade-off.

The "high by-pass" characteristics are also shared by the dried distillers grain and solubles that are left from the production of alcohol in the smaller, on-farm facilities. The DDGS, as it is called, is from 27% to 30% protein, and once again only the starch from the original corn is used up in the production of alcohol. It should be stressed that the high protein byproduct from alcohol production is actually superior to corn for feeding livestock and that, as long as the starch portion is replaced

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balance is essential for adequate human nutrition as well. It is commonly said that the world food problem is a protein problem, not a calorie problem. This is not correct. The world food problem is both a calorie and protein problem, but more people suffer from an inadequate calorie intake than from inadequate protein intake. The last five world food surveys—three undertaken by the Food and Agriculture Organization of the United Nations, one by the U.S. Department of Agriculture, and one by the World Bank—all reached the same unequivocal conclusion. That conclusion was that the world food problem is primarily calories to maintain normal body weight and levels of physical activity. To give these undernourished people protein is a waste because under conditions of inadequate food energy, human metabolism converts protein into energy.

Globally, the use of cropland and agricultural resources to produce transportation fuel will require careful consideration by governments already importing grain, and facing major population growth in the coming decades. The grain they now purchase from the United States may be less available and more expensive as U.S. alcohol production expands.

As more and more distilleries are built to produce fuel-grade alcohol, distillers will join millers, feedlot operators, and exporters in bidding for available grain supplies. While some slack can be found in our system to accommodate these new demands, there is no longer any

BEDELL

by other, very abundant waste and residual materials, the production of alcohol results in no loss of feeding value.

It should also be mentioned that many nutritionists are pointing to the high-protein byproduct as a very versatile and promising human food material. In fact, there are now designs for plants that would include in the co-generation stream a high-protein material that would be jeopardized. It is clear that the problem with food aid today is not the availability of food (the United States has been in surplus for the last several years in a row), but in the ability of the transportation systems and food-deficit countries to ship and store the needed grains. Shipment of the high-protein byproducts, which would offer the same amount of protein in only one-third of the space because of its concentrated form, would help to solve many of these problems, and actually benefit world food aid efforts, not detract from them, as Mr. Brown suggests. Once again the world is protein deficient, not starch deficient. The energy portion of the original grain can easily be made up from other sources.

All of this is not to say that if the entire U.S. corn crop were to be used to produce alcohol there would not be a clash with food and feed demands. But such an extreme occurrence is very unlikely, in light of the fact that economically viable methods of transforming abundant cellulose (wood residues, crop residues, urban wastes) into alcohol are only several years away. Even now the designs for larger alcohol production facilities include plans for the eventual addition of a front-end unit that would enable the facil-

BROWN

cropland idled under U.S. farm programs, and so no land that can readily be drawn into use. Poor harvests in a few key countries in 1980 have further tightened the food situation, driving world food prices upwards.

As the phased de-control of oil prices proceeds in the United States over the next year, the rising price of gasoline will enable distillers to pay higher prices for the grain they use to make a gasoline substitute. As energy crops become more profitable, their production will expand until an economic equilibrium is reached between the prices of agricultural commodities used for distillery feedstocks and those used for food.

A carefully designed U.S. alcohol fuel program could support food production rather than undermine it. Giving farmers first priority in the use of ethanol for tractors, farm trucks, and irrigation pumps would help ensure future food supplies when oil supplies begin to dwindle. If we can produce more alcohol than is needed to satisfy farm needs, then we might consider burning it in automobiles. But not before then.

If we proceed carefully, we might discover ways to double-crop substantial areas of our farmland so as to produce a winter feed crop, probably barley, which matures more quickly than most winter grains, and a summer energy crop, such as sweet sorghum, which ranks close to sugarcane in alcohol yield per acre. If this could be done without leading to excessive soil erosion, it could eventually mean a major restructuring of United States agriculture. The potential of double-cropping has not yet been carefully researched, largely because of over cropping—

ity to use cellulose feedstocks rather than rely solely on grains.

I commend Lester Brown for his effective campaign to heighten our awareness of the dangers of cropland loss and food productivity declines. However, I sincerely believe that in this instance, he has failed to acknowledge the flexibilities inherent in the production of fuel alcohol from grains. There is no likely "food against fuel" crisis involved. Without an effective alcohol fuels program in this country, however, he is right about one thing: "The price of oil may soon set the price of food." Even now American agriculture draws 93% of its energy requirements from petroleum-based fuels. The sky-rocketing production costs that this dependence has brought will ultimately result in either of two unacceptable scenarios: The American family farmer driven into bankruptcy and replaced by conglomerates, or eroded productivity of our farmlands. Either one will surely bring the explosion in food costs that he ascribes to the production of alcohol.

Alcohol fuel is but one of the variety of renewable energy resources that our farmlands and rural communities can deliver in abundance. It is "doable" right now and deserves all the support we can give it. Certainly, it deserves far better than to be dismissed on the basis of unsubstantiable "doomsaying" about "food against fuel" dangers. ☐

Berkley Bedell is a Democratic member of the House of Representatives from Iowa. This article is adapted from remarks he read into the Congressional Record on March 19.

"... it is a misnomer to talk about a 'food vs. fuel' tradeoff when using corn.... It should be stressed that the high protein byproduct from alcohol production is actually superior to corn for feeding livestock...."

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the principal problem throughout the last three decades of rapid agricultural modernization in the United States.

An alcohol fuel industry that used agricultural wastes, food industry by-products, and cellulosic materials, such as corn stalks, could and should become an important renewable source of fuel. The Department of Energy estimates that distilling four-fifths of the country's cheese whey, citrus wastes, and other food processing wastes would yield 500 million gallons of ethanol this year if the distilleries were in place. The issue is whether governments can encourage the production of alcohol fuel without inadvertently launching an industry that competes directly with food production.

In addition to the United States, other food exporters, including Australia, New Zealand, and South Africa, have either launched or are seriously considering large alcohol fuel programs. All these countries see the production of ethanol as a way to reduce their dependence on imported oil. The U.S. alcohol fuel program is primarily based on the use of corn, and Australia is using wheat in its pilot project. These plans to divert food crops to the production of fuel come at a time when efforts to raise food consumption among the world's poor are losing momentum. Even without the competition from energy crops, the world will be hard pressed to avoid a decline in per capita food production during the decade ahead. ☐

Lester Brown is president of Worldwatch Institute in Washington, D.C. His book, "Food or Fuel: New Competition for the World's Cropland" was published this year.

"These plans to divert food crops ... come at a time when efforts to raise food consumption among the world's poor are losing momentum."

Developing Countries Can Have Both

by Robert L. Bard

In the June 80 issue of Agenda, Lester Brown claims that the increasing use of food grains for the production of alcohol represents a threat to the world's impoverished. In fact, it will have exactly the opposite effect.

Brown correctly cites Brazil as the country which has progressed furthest in the production of alcohol from food crops. But Brazil's production of alcohol comes from sugarcane, not wheat, corn, or rice. Sugarcane is one of the few crops that will grow well in Northeast Brazil. But sugar itself is neither nutritious nor a good cash crop. In fact, sugar almost always is overproduced. With the conversion of sugarcane to alcohol, the residents of Northeast Brazil finally have a product for which there is a market. With the cash that sugar growers can earn from selling alcohol to developed countries and to the more urban areas of Brazil, they can now for the first time afford to purchase food and other essentials. Clearly this is an absolute net benefit to any country that is relatively efficient in producing sugar but inefficient in producing crops that can be consumed directly or can be sold easily.

Brown's entire thesis is based upon the proposition that the world has reached the limits of its food production capacity so that grains converted to alcohol reduce the capacity of hungry people to purchase grain for direct consumption. But, for the foreseeable future developed countries easily can expand grain production to satisfy cash demand for both food and alcohol. The limitations are on the capacity of many people to buy food from abroad, and on the willingness of developed countries to give food free. The reason so many people are hungry is not that the world lacks food production capacity, but that these people cannot efficiently grow the food themselves nor can they make any other product they can sell in exchange for the food.

To repeat, the reason why so many people in the Third World go hungry is not because the United States, Canada and Australia do not have the capacity to grow food for them. What these people lack is access to sufficient foreign exchange to buy the product from us. To the extent they have the foreign exchange, there is no problem in finding sellers. Farmers, particularly in the European Economic Community, which lives with constant food surpluses, would only be too happy to satisfy increased *cash* demand. What they are unwilling to do is to give away their product. Under these circumstances alcohol produced from sugarcane in poor countries can provide foreign exchange to purchase food from developing countries. Alcohol produced from grain in developed countries does not reduce the available supply of grain because developed countries can and will expand their grain production so long as there are buyers willing and able to purchase their product. □

Robert L. Bard is a professor of law at the University of Connecticut.

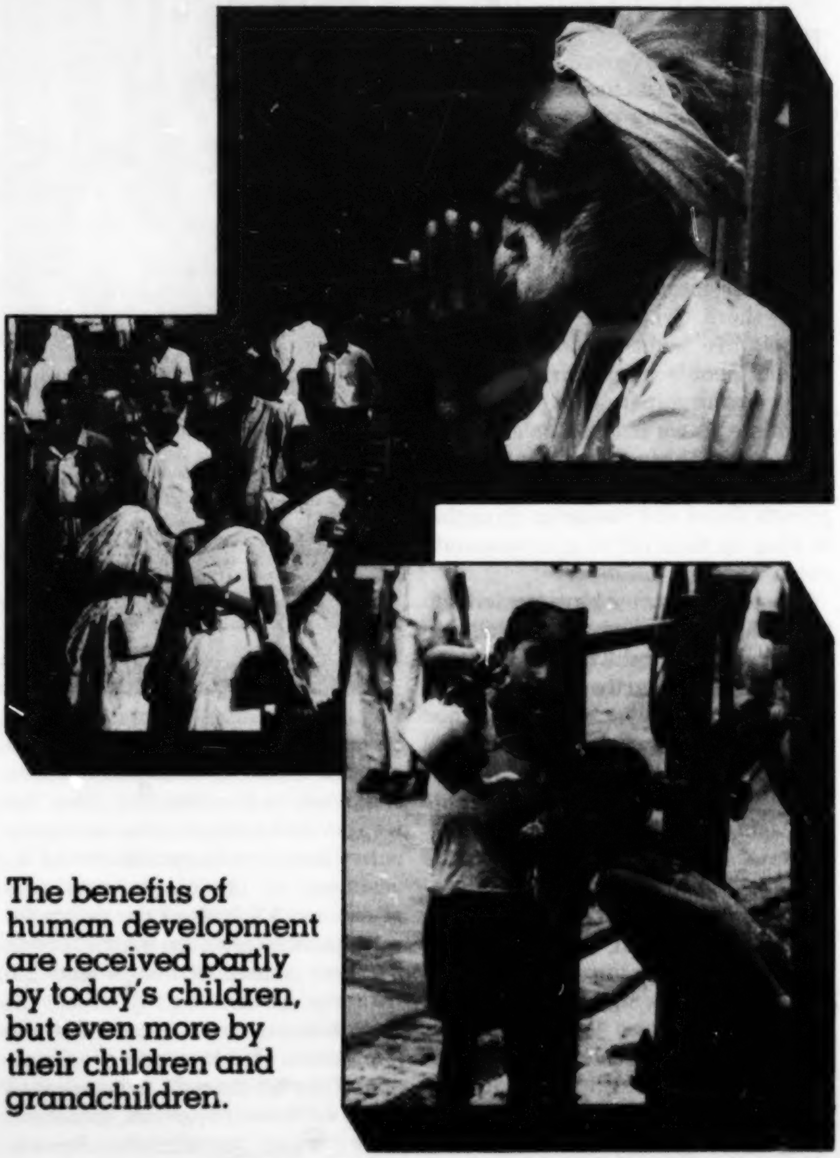
WORLD BANK DEVELOPMENT REPORT

International aid for human development programs has been provided for decades and has contributed to several notable successes. It has played a major role, for instance, in helping to spread education; in eradicating smallpox and sharply reducing several major diseases (including yaws, malaria, leprosy and African sleeping sickness); and, perhaps most significantly, in increasing the production of basic foods.

On the other hand, some aid programs have failed—or have succeeded while indirectly contributing to inappropriate policies. Until the early 1970s, there was an emphasis on showcase universities, large urban hospitals and large-scale agriculture—consistent with development thinking at that time. Not surprisingly, such international assistance involved transferring some technologies or institutions from developed countries without adequate recognition of how the circumstances of developing countries differed.

Since the benefits of human development are received partly by today's children but even more by their children and grandchildren, governments that are hard pressed financially may find it difficult to justify spending as much on human development as is desirable for long-run economic growth, let alone for alleviating poverty. This dilemma —which will be acute during the next few years of financial stringency—is one for which external assistance can be particularly helpful. Many other measures—from small-farmer programs to power generation and industrialization—are also needed to reduce poverty and raise average incomes; these merit strong international support as well.

If donors providing assistance to a country are unwilling to finance human development programs, these programs in most cases will be smaller than they otherwise would have been. Similarly, if donors are willing to finance only "bricks and



The benefits of human development are received partly by today's children, but even more by their children and grandchildren.

"There is a complex interdependence between . . . health, nutrition, education and fertility; all affect each other."

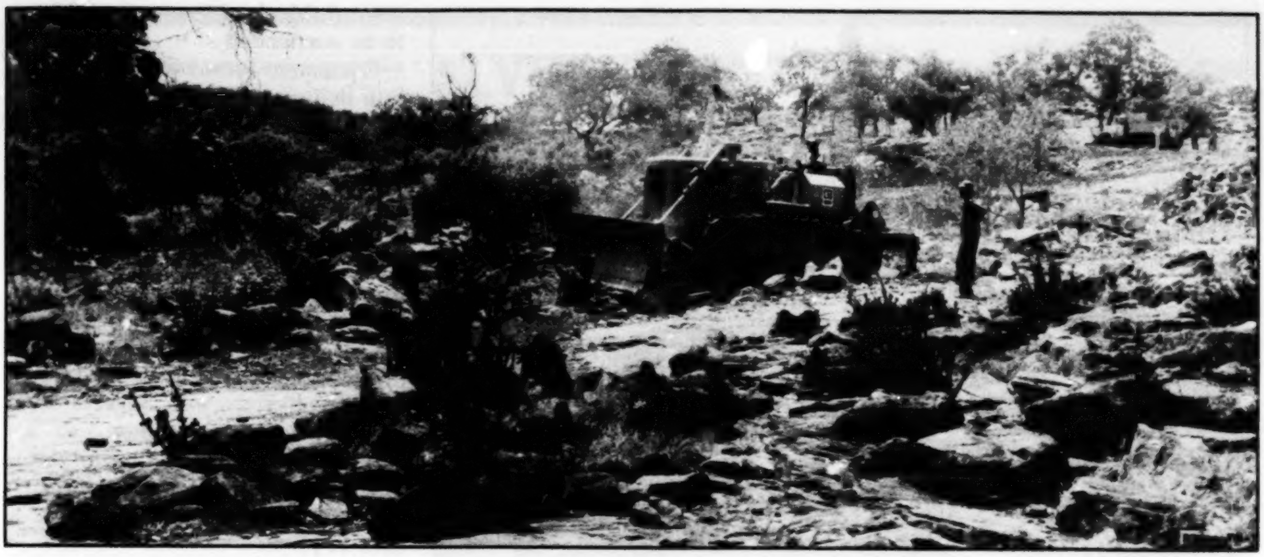
mortar" but not teachers or health workers, the net effect will be . . . overly expensive and underused buildings and insufficient staff. Yet in developing countries a high proportion of spending on primary education and health care, for example, is, and should be, for operating (recurrent) costs. In many countries, such as Tanzania and Upper Volta, money for operating costs is already very short, with the result that schools are without books or even paper, health posts are without medicines or supervision (due to inadequate travel budgets or gasoline shortages). These increasingly common shortages will get worse as growth slows and countries struggle to keep up their physical investment rates.

Most aid agencies have preferred to limit their funding to physical investment, being reluctant to finance operating costs partly out of concern that projects in which a developing country lacked a substantial financial stake might not develop enduring roots, but also from fear of encouraging consumption at the expense of investment. As this Report stresses, however, human development increases productivity, reduces fertility and thus promotes long-term growth in average incomes. A significant part of spending—operating as well as capital—on human development therefore is investment. This is most evident in primary education, which in many countries has economic returns well above average: the salaries of teachers should no more be regarded as consumption than the wages of workers on irrigation projects. There is a large element of investment in family planning programs as well (indeed the estimated returns often are even higher) and to a lesser extent in health and nutrition programs.

With increasing recognition of the importance of antipoverty programs, and of the investment component of many of these programs, practices have begun to change. Several donors, including the World Bank, have been financing the salaries of agricultural extension workers, and in some cases the operating costs required to carry out education and training projects—teachers' salaries and teaching materials, for example. In May 1979 the OECD's Development Assistance Committee adopted new guidelines on the financing of local and recurrent costs, which recognized that basic human development programs were particularly suitable for these kinds of financing.

Donors should of course be concerned to avoid waste in operating costs, just as in construction costs. And they need to ensure that programs develop adequate financial support for operating costs from national and local governments—lest they wither away when international aid is withdrawn. Thus the share of operating costs covered by external assistance should be reduced gradually, which will encourage steady increases rather than quantum jumps in the amounts to be financed from local funds.

Donors should also consider providing sectoral or subsectoral, as well as project, financing. This enables governments to focus on the institutional, planning and policy issues that have a strong influence on the success of individual projects; it also provides a useful framework for striking the appropriate balance between capital and operating costs. ☐



BUILDING A ROAD, BUILDING A FUTURE

A new farm-to-market road in Upper Volta will help pave the way to a better life for isolated farmers.

Story by Robert Stevens Photos by Larry Dominessy

The diesel roars of Caterpillar earth-moving equipment are now familiar, even welcome sounds to villagers who live along the new Namounou-Logobou road in Southeastern Upper Volta.

After topographical studies stretching out over years were completed, land-clearing crews started the 25-mile stretch of road a year ago. Each day, amid pillars of dust and beneath the scorching African sun, the road slowly winds closer to providing a better way of transporting grain crops from the fertile but isolated rural areas of Logobou and Mahadaga to the grain-buying center of Namounou. From there, the cereals are driven to the market and distribution centers of Fada N'Gourma and Ouagadougou, the capital.

The project is the first in a series of three AID-assisted farm-to-market roads in the eastern part of the country. More than 30 Voltan mechanics, map-makers and heavy equipment operators will live and work at the site until mid-1981, the expected completion date. In addition, laborers and craftsmen from nearby villages have been hired.

Ten miles outside the base camp looms the project's most formidable challenge—the Gobnangou mountain chain. In Upper Volta, what is referred to as a mountain chain is actually a long, winding stretch of rocky terrain. The 1.5 mile stretch over which the road must pass may not appear threatening at first, but the hairpin turns and granite boulders are enough to test the best drivers' skill. Clumps of Michelin rubber on the current roadway attest to the fate of many vehicles. Even the heavy road-building machinery suffers, and bulldozer operator Victor Gango's complaint, "The boulders are destroying my blades!" is common. But to the farmer who takes millet and rice to market either by donkey cart or 20-ton truck, the prospect of an easy passage is a dream soon to come true.

Dynamite will clear some of the boulders and level the terrain, says Serge Edouard, an engineer on contract to AID. And during the rainy season when run-off can turn into a

The road project is the first in a series of AID-assisted farm-to-market roads in the country.

raging torrent, the water will be rerouted away from the road bed.

* * * *

Groups of old men, their faces scarred with tribal marks, sit quietly beneath scatterings of mango trees and discuss the road's progress. To them the monstrous, yellow landgraders and bulldozers are a sign of the force of modernization which can threaten the old ways. But in this case tradition has not been forgotten. At several places in the road, curves have been installed to avoid the destruction of baobob trees, mammoth providers of food and medicine whose leaves are frequently used to cure dysentery. They are living memorials to the fact that progress does not necessarily mean destruction.

The dwelling places of ancestral spirits and sacrificial grounds also have been left untouched. Crew chief Matthien Nare reports:

"One day while the bulldozer was working at the foot of the chain, it came to a group of several rocks around a tree. One of the laborers, an elderly man, took me aside. He explained that this was a special spot where sacrifices were regularly made and recommended that we shouldn't destroy it. We're building the road around it."

* * * *

Arriving each morning at the base camp shortly after dawn, each crew member is prepared for rain. Once the heavy downpours start, 10-ton dump trucks sink waist-deep in mud and dried stream beds swell beyond control. Much of the work will have to be suspended.

Equipment breakdowns and the late delivery of diesel have already hampered the work. Supplies must come from Ouagadougou, an exhausting 280 miles away over poorly-maintained dirt roads. And spare parts cannot always be found. Nothing is certain this far out in the bush.

* * * *

Angry black clouds mount against the blue eastern sky. Several hard rains have fallen already, and it's time for the farmers to begin planting. Farming is the sole means of survival for most of Upper Volta's 6 million people.

Lean, sturdy farmers trudge by on their way to the millet fields. As they pass the road builders they shout words of encouragement in Gourmantche, the region's dialect.

"Tuon tuonli!"

"Laa fia!" comes the reply.

Once considered foreigners, because they came from other parts of the country, the crew is accepted now. Most have picked up some basic Gourmantche greetings; some have advanced to market conversation. After work and on weekends, they join in on energetic soccer games with village teams, or sit and drink millet beer with their neighbors.

Soon they will be gone, leaving the road, and friends behind to enjoy the road. A local merchant tells a construction worker:

"Once the road is finished and you're gone, all you will have is a memory of your work. But travelers on the road will not think back. Just as during a hard rainfall, you don't think of how small the millet was last week but how tall it will be one week from now, you know it will be good for the future." ☐

Robert Stevens, former Peace Corps volunteer in Upper Volta, and Larry Dominessy, project officer, are both assigned to AIDs Upper Volta Mission.

VIEWPOINT

Poverty, Forestry and Peace

by George M. Guess

Few U.S. policy makers recognize the link between political upheaval in the Third World, particularly Central America, and failure to manage renewable natural resources. While nobody would seriously argue that natural resource mismanagement causes revolution, the link between poverty and the failure to properly manage land, water and forests is unmistakable. If poverty leads to unrest and conflict, then it follows that natural resource degradation is a powerful indirect cause.

For example, massive institutional failures have encouraged elimination of most tropical forests in developing countries at the rate of almost 11 million hectares a year. Inequitable land tenure, unemployment and malnutrition have encouraged disadvantaged people to cut forests for fuelwood, charcoal, building materials and space—all to meet immediate, urgent needs. Yet over the long term, deforestation leads to a scarcity of those needed materials, raising their price and ultimately intensifying poverty.

The current analysis is as follows: The negative consequences of deforestation are cumulative—the available supply of clean water diminishes, soil becomes increasingly infertile, erosion accelerates, and finally, there is less food to eat or to sell. The net result is an ecological wipeout that silts dams, destroys food production and forces many to go hungry.

But this analysis is too simplistic. It ignores the fact that there already are many existing, well-conceived statutes designed to preserve natural resources. It fails to recognize that those in power are ignoring those statutes.

Current political crises in Central America are largely an indirect visceral response by the people to natural resource policies that have failed and, through their failure, have denied the poor the opportunity either to earn an income through farming or forestry, for example, or at least to obtain the basic necessities of life.

It is essential that international donors encourage developing countries to develop institutions capable of designing and carrying out programs such as forestry for rural development. The current lending pattern among most donors stresses industrial forestry and study-analysis of deforestation and environmental degradation. The emphasis should be shifted to "on-the-ground" forestry for development. In some countries good opportunities in forestry have been made even better by introducing extremely fast-growing species—luecaena and albizia, for example. Growing these trees alone or together with cash

crops (intercropping) such as barley, soybean or cotton can provide economic returns to up to 50% in four to five years.

Donor programs have tended to back host country institutions which lack the will and capacity to administer development programs in Central America. Exceptional institutions like the Honduran Forest Development Corporation (COHDEFOR) confirm the thesis that reducing growing political tensions may be linked to improving the effectiveness of renewable natural resource programs.

Institutions of the caliber of COHDEFOR can be built in other developing countries with donor assistance. They must, however, be able to overcome some serious constraints. First, although renewable natural resource programs require on-site authority to mediate land use conflicts and to shift spending priorities as circumstances change, most are over-centralized. The organizational structure must somehow be centralized enough to govern independently, but decentralized enough to assure effective program management. Working with host country enterprises and other local organizations with experience in forestry and in working with the rural poor could help counter the negative effects of over-centralization.

Donors can help. Understandably LDCs often shop around and select loans with the least stringent conditions. In the past, Central American countries have avoided land tenure reforms and effective rural income-employment programs that threaten the status quo, and the well-being of the elite. U.S. donors should insist that programs they support carry stringent conditions and encourage other donors to follow suit. This is in the best long-run interest of both the rural poor and the elite. Donors also can encourage routine tasks such as maintenance, planting, harvesting, as well as mediation of conflicts—all often guided by "rule of thumb"—to be managed on the spot by line units. Effective management not only can improve rural income and employment, but also can contribute to building an effective rural political power base. ☐

George M. Guess is an institutional analyst for natural resources programs in AID's Office of Development Support. He is a professor on leave from the University of New Mexico.

WHAT THE MEDIA SAY...

The role of the 141-member World Bank should be "that of an advocate" in assisting economic development in the Third World, the Carter administration's nominee for the bank presidency, A. W. Clausen, said yesterday.

Clausen, 57, president of the world's largest bank, the San Francisco-based Bank of America, said in an interview: "We're the richest nation on earth and we're dragging our heels. The kind of assistance we're talking about is in our vested interest. Helping keep patients abroad alive is what keeps the U.S. alive economically."

—Washington Star

Donald F. McHenry, the American Ambassador to the United Nations, said (in Pittsburgh) yesterday that "cutting foreign aid is not the way to exercise world leadership."

Continuing to do so because Congress has failed to act for two years "raises the price that some day will come due," he predicted.

—Pittsburgh Post Gazette

"I have no time to waste," Edward Seaga told a friend in his office this morning (Nov. 2) after he led his free enterprise-oriented Labor Party to the biggest landslide victory in Jamaica's history.

Yesterday, Seaga was sworn in as prime minister and began officially the urgent task of trying to correct the economic mismanagement which wrecked the island's flirtation with socialism, or social democracy, as Michael Manley's People's National Party would call it.

—Washington Star

From Douglas J. Bennet Jr., Administrator, Agency for International Development.

Mahmoud A. Wahba's commentary "Where U.S. foreign aid doesn't" (Outlook, Sept. 9) is wildly inaccurate in its particulars. He mentions a road built by the Russians and another built by the Chinese in Yemen, but somehow missed the main road from Sana to Taiz originally built by Americans. He is concerned about incomplete projects, but somehow missed the Agency for International Development-financed Taiz water works, named for President John Kennedy. . . .

Wahba finds AID's image somewhat battered in the Arab world. Scars earned in the cause of sound administration I don't regret. I also note that we continue to receive requests for assistance regularly from poor countries in the Middle East.

—Houston Chronicle

The United Nations has announced plans to open an agency next year that will serve governments, industry and research institutions as a clearinghouse for information on the extraction of oil from heavy crude and tar sands.

—New York Times

The Agriculture Department is predicting that a year from now the world's reserves of cereal grains will be at the lowest level in five years in proportion to what is consumed. For this reason, it is considered likely that in the coming months international competition for supplies of wheat, corn and soybeans will be the fiercest since the record grains trade years of 1972-73 and 1974-75.

—New York Times

Sudan, a Northeast African nation of critical importance to the United States, because of its proximity to the Middle East, has defaulted on its foreign bank debts. Most of the banks haven't received a penny since the end of 1978.

The five banks with the most at stake—Citibank, Chemical Bank, Deutsche Bank, Union Banques Arabes and Francaise and Arab African International Bank—agreed last Friday (Oct. 24) on a plan to refinance the country's estimated $500 million debt over seven years. The package includes new funds for the cash-strapped nation, the largest in Africa.

But it remains to be seen whether the approximately 230 other creditors can be pressured to go along—even though the United States, Japan and nine other European nations agreed in principle last November to reschedule about $497 million in government loans, and even though the International Monetary Fund just agreed to advance the nation more funds—a critical "stamp of approval" for developing countries.

—Laura Wallace
Wall Street Journal

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